

## **MOTOR VEHICLE AND ENGINE COMPLIANCE PROGRAM COST ANALYSIS**

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## I. Overview of MVECP Fees Cost Analysis

This cost analysis describes the costs incurred by the Environmental Protection Agency (EPA) in conducting the Motor Vehicle and Engine Compliance Program (MVECP). The MVECP provides certification and compliance services related to air pollution control in highway and nonroad<sup>1</sup> vehicles and engines. Along with background information, this document provides an overview of the methodology used by EPA to determine and allocate the cost of the MVECP, detailed in Appendix C, and a description of a proposed new fee schedule.

This cost analysis will be used for: (1) developing regulations consistent with the Clean Air Act (CAA), the Independent Office Appropriations Act (IOAA), the Office of Management and Budget Circular No. A-25, and other legal authority; and (2) creating a Fee program that will result in the MVECP being self-sustaining to the full extent possible. In order to perform this cost analysis, we performed the following methodology steps: (1) Examined 2001 OTAQ budget to determine which OTAQ programs are MVECP related. (2) Identified and specified all current costs associated with the OTAQ Divisions that conduct or support the MVECP related programs [these Divisions were identified as the Laboratory Operations Division (LOD) and the Certification and Compliance Division (CCD)], and identified and specified all projected future certification and compliance program costs under MVECP. (3) Determined the appropriate methods to allocate certain MVECP costs as recoverable or non-recoverable (Allocation Type 1) and appropriate methods to apportion MVECP costs to industry categories (Allocation Type 2). (4) Categorized all the MVECP costs into three major categories-direct and indirect labor, direct and indirect operating costs and overall EPA overhead costs and determined the portion of these costs that was recoverable by using a method under Allocation Type 1 (associated with the MVECP). (5) Separated industries into fee categories by their associated and similar level of MVECP costs of certification and compliance services. (6) Allocated recoverable costs from step 4 by fee category by using a method under Allocation Type 2. (7) Determined a fee schedule based upon recoverable costs for each certificate type under the fee category and the number of known and projected certificates issued annually for that certificate type.

The written part of this analysis is a guide to understanding the worksheets in Appendix C. There are 16 cost analysis worksheets found in Appendix C. The reader should review the primary four worksheets: the overall cost summary (worksheet 1), the proposed fee structure by industry (worksheet 2), summary-sheet for LOD (worksheet 3), and the summary-sheet for CCD (worksheet 4). Beyond these four primary worksheets each subsequent worksheet supports and provides greater detail of the costs and fees shown in the primary worksheets.

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<sup>1</sup> The term “Nonroad” is used in some places in this document to capture all the industry categories that are not highway categories, such as marine, recreational, nonroad CI and SI engines, locomotives, etc., and is used also for specific categories such as nonroad CI and SI engines.

The acronyms used in the cost analysis methodology are defined and listed in Appendix A, of this document. Appendix B includes definitions of terms used throughout this document.

## **II. MVECP Fees Program**

### **A. Description And Background**

On July 7, 1992, EPA published a final rule (57 FR 30055) establishing user fees to recover all reasonable costs associated with certification and compliance programs of highway vehicles and engines within the Office of Transportation and Air Quality (OTAQ), then called Office of Mobile Sources (OMS). Functioning under the Office of Air and Radiation (OAR), OTAQ carries out a broad range of activities to help reduce pollutants emitted from highway and nonroad vehicles, engines and their fuels. The MVECP includes all compliance activities performed by EPA that are associated with certification, fuel economy, selective enforcement auditing (SEA), and in-use compliance. In 1999, under the Compliance Assurance Program (CAP 2000) regulations (64 FR 23906), the provisions for fees were updated to reflect several changes in the costs of the MVECP. For example, the fee schedule was updated to reflect the change in the anticipated number of certificate requests. The CAP 2000 regulations apply only to light-duty vehicles (cars and trucks). At that time EPA also recognized the need for updating the 1991 cost analysis but determined that the appropriate time to do a comprehensive reevaluation would be in a separate rulemaking.

The fee regulations were further modified by a regulatory amendment published on March 7, 2000 (65 FR 11904). This amendment, applicable to original equipment manufacturers (OEMs) and aftermarket conversion manufacturers, allows a fee waiver for small volume alternatively fueled vehicles and engine families that are certified to the Clean-Fuel Vehicle standards for model years (MY) 2000 through 2003 only.

EPA has conducted a complete assessment of the combined changes in all compliance activities and programs since the 1991 cost analysis and the recent implementation of CAP 2000 regulations. Since 1991, EPA has incurred additional costs due to inflation along with increased costs for supporting current compliance programs, new compliance programs and testing requirements for nonroad, heavy-duty and Tier 2 regulations. The fee provisions are currently being updated to reflect these changes and will be presented in an upcoming Notice of Proposed Rulemaking (NPRM) for the MVECP fees program.

### **B. To What Industries Will The Updated Fees Apply?**

The proposed fees apply to manufacturers of the following:

- Light-duty vehicles (cars and trucks) (Reference 40 CFR Part 86),
- Medium Duty Passenger Vehicles (Reference 40 CFR Part 86),

- Complete gasoline-fueled highway heavy duty vehicles (Reference 40 CFR Part 86),
- Heavy-duty highway diesel and gasoline engines (Reference 40 CFR Part 86),
- On-highway motorcycles (Reference 40 CFR Part 86),
- Nonroad compression ignition engines (Reference 40 CFR Part 89),
- Locomotives (Reference 40 CFR Part 92),
- Marine diesel and gasoline engines (Reference 40 CFR Parts 91, 94, or 1045 and MARPOL 73/78, as applicable),
- Nonroad spark ignition engines (Reference 40 CFR Parts 90 or 1048, as applicable),
- Recreational vehicles (including, but not limited to, snowmobiles, all-terrain vehicles and off-highway motorcycles) (Reference 40 CFR Part 1051), and
- Heavy-duty highway gasoline vehicles (evaporative emissions certification only) (Reference 40 CFR Part 86).

### **C. Updating the MVECP Fees Program: Overview of the Proposed Rulemaking**

Under our current MVECP fees program, user fees are collected for highway vehicle and engine compliance and fuel economy programs and are applicable to manufacturers of light-duty vehicles, light-duty trucks, heavy-duty vehicles, heavy-duty engines and highway motorcycles. In the upcoming NPRM, EPA is proposing to update fees for these current industries as well as proposing to establish fees for nonroad manufacturers. Fees are applicable to all industry types listed in Section II. B. of this document.

Under the MVECP, fees are collected to recover the cost of services associated with: (1) new vehicle or engine certification; (2) new vehicle or engine compliance monitoring; and (3) in-use vehicle or engine compliance monitoring and testing. EPA is proposing to update the fees regulation due to increased costs to the Agency in running the MVECP. More specifically, these costs are associated with the activities that support the MVECP's certification, fuel economy, SEA, and in-use compliance programs. For example, our certification activities include: providing certification assistance during the pre-production phase; pre-certification confirmatory testing of vehicles; laboratory correlation; certification compliance audits and investigations; and review and audits of manufacturers test data. Fuel economy activities include: fuel economy selection, testing, and labeling; and providing manufacturers and ICIs corporate average fuel economy (CAFE) calculations. EPA's Selective Enforcement Auditing (SEA) activities include selecting vehicles or engines from a manufacturer's production line for testing and monitoring and/or monitoring the testing of vehicles or engines at a manufacturer-selected facility. Finally, our in-use compliance activities involve: auditing and reviewing the in-use data of vehicles and engines; monitoring in-use testing; and conducting Agency-run in-use surveillance and/or recall tests.

Our proposed fees reflect the costs in administering both current and future compliance programs. The increased costs to the Agency also includes costs for: testing equipment needed for measuring emissions from vehicles and engines that meet new more stringent emissions standards; implementing new compliance programs such as heavy-duty nonroad, marine, small nonroad and locomotive engines along with the anticipated compliance programs for recreational

vehicles; an increased emphasis on the in-use performance of heavy-duty engines and inflation.

The cost of implementing any of the MVECP activities is considered a recoverable cost that may be collected through fees. However, it should be noted that not all compliance activities are associated with all industries. Costs are allocated by industry. For example, fuel economy costs only apply to the light-duty industry.

There are numerous activities related to mobile source air pollution control that are not included in the MVECP, and for which EPA does not anticipate assessing fees. We mention this because although these activities benefit manufacturers indirectly by facilitating the MVECP, we have chosen not to propose fees for these activities which might be viewed as non-compliance oriented. Such activities include: regulation development, determination of emission factors, air quality assessment, advanced technology development, and support of inspection and maintenance programs. Since most of the OTAQ regulations set emission standards for vehicles and engines and do not specifically assist or benefit the manufacturers during a regulatory process, we believe that most of our regulatory efforts create a more general public benefit rather than a specific private benefit, and therefore, we are not including any costs associated with rulemaking activity within the costs we seek to recover under the MVECP.

#### **D. Description of the Five (5) OTAQ Divisions**

EPA's Office of Transportation and Air Quality (OTAQ) is responsible for developing and implementing programs to control air pollution from motor vehicles, engines, and their fuels. OTAQ's mission is to reconcile the transportation sector with the environment by advancing clean fuels and technology, and by working to promote more liveable communities. OTAQ's compliance programs focus on the nonroad and highway mobile sources which include: light-duty vehicles (cars and trucks), medium duty passenger vehicles, complete gasoline-fueled highway heavy duty vehicles, heavy-duty highway diesel and gasoline engines, on-highway motorcycles, nonroad compression ignition engines, locomotives, marine diesel and gasoline, nonroad spark ignition engines, recreational vehicles (including, but not limited to , snowmobiles, all-terrain vehicles and off-highway motorcycles), and heavy-duty highway gasoline vehicles (evaporative emissions certification only).

OTAQ is divided between EPA's headquarters in Washington, D.C. and the National Vehicle and Fuel Emission Laboratory (NVFEL) in Ann Arbor, Michigan. OTAQ includes the Immediate Office of the Director and five major divisions: Advanced Technology Division (ATD), Assessment and Standards Division (ASD), Certification and Compliance Division (CCD), Laboratory Operations Division (LOD), and the Transportation and Regional Programs Division (TRPD). Below is a description of the activities and programs in each division.

##### **Advanced Technology Division**

The Advanced Technology Division (ATD) is responsible for the development of automotive technology for improving fuel economy and reducing emissions from mobile sources. The division's projects include advanced technology development, low NOx

diesel engines, and alternative fuel technologies. ATD is also responsible for climate change policies and strategies related to vehicle efficiency and fuels.

### **Assessment and Standards Division**

The Assessment and Standards Division (ASD) identifies and develops future emission control strategies and is responsible for federal rulemaking and policy development for highway and nonroad vehicles, engines and fuels. In the process, ASD determines the contribution of mobile sources to pollutant emission inventories and assesses the feasibility, cost, and in-use effectiveness of emission control technologies. ASD uses an integrated approach that addresses both vehicle/engine classes and fuels simultaneously. ASD also develops the computer models EPA uses to support environmental policy decisions, tests their assumptions, analyzes their effectiveness, makes improvements in them and also provides modeling support to other OTAQ Divisions.

### **Certification and Compliance Division**

The Certification and Compliance Division (CCD) manages federal compliance programs for all highway and nonroad vehicles and engines including pre-production certification and activities that assess the new engine and in-use performance of these vehicles and engines. These programs include certification, fuel economy, selective enforcement audits, and in-use compliance activities. CCD also conducts a national fuel economy and CAFE audit program for light-duty passenger cars and trucks. This division plays a major role in the MVECP. CCD is also responsible for the On-Board Diagnostics (OBD) and On-Board Vapor Recovery (ORVR) programs. Approaches to compliance have been reinvented through the CAP 2000 rulemaking by setting compliance goals and focusing more on in-use effectiveness. CCD staff is split between Ann Arbor and Washington, DC.

### **Laboratory Operations Division**

The Laboratory Operations Division (LOD) provides emission testing services for light-duty vehicle, highway and nonroad CI and SI heavy-duty engine, and nonroad engine programs in support of rulemaking development, enforcement actions, and compliance testing. LOD conducts tests for certification, fuel economy, in-use compliance, fuels and fuel additives analysis, and exhaust compounds analysis. LOD is also responsible for providing all facility services and upgrades, computer network services, and administrative support services to OTAQ.

### **Transportation and Regional Programs Division**

The Transportation and Regional Programs Division (TRPD) works with regions, states, local government, and other stakeholders to reduce pollution from fuels, transportation, and nonroad sources. TRPD implements national and regional pollution control programs, such as the reformulated gasoline (RFG) program and a transportation-based climate change program. It also develops and supports voluntary initiatives that encourage clean air and liveable communities such as the Commuter Choice Program. State and local government agencies and EPA's regional offices work with TRPD and are

key partners with OTAQ in pursuing its goals of reducing mobile source emissions and achieving sustainable transportation systems. TRPD staff is split between Ann Arbor and Washington, D.C.

### **Immediate Office**

The Immediate Office of the Director in Washington, D.C. is comprised of the Director, her staff and OTAQ's budgetary, policy and communications functions. The Immediate Office of the Deputy Director, located in Ann Arbor includes the Deputy Director. His staff oversees Human Resources and NVFEL communications functions.

## **E. MVECP Activities**

The following compliance-related activities comprise the bulk of EPA's actions that incur recoverable<sup>2</sup> costs:

### **Certification**

Before a manufacturer can distribute into commerce, introduce or deliver for introduction into commerce, import, sell or offer for sale a regulated vehicle or engine in the United States, it must obtain a certificate of conformity from the EPA. To obtain a certificate, manufacturers must go through the certification process, which may include submitting one or more prototype vehicles or engines of an engine family or test group to EPA for emissions confirmatory testing. The CAA requires EPA or manufacturers to conduct a variety of tests necessary to ensure that these vehicles and engines comply with established standards. In addition to confirmatory testing and compliance inspections, EPA's certification activities include, but are not limited to, the following: review of applications for certification; review of durability justification; emission data vehicle and engine approval, testing, and processing; certification request processing; review of manufacturer application for certification and review of manufacturer tests; generating and issuing certificates; and maintaining a vehicle and engine test database.

### **Fuel Economy/Corporate Average Fuel Economy (CAFE)**

EPA administers the fuel economy program for passenger cars and light-duty trucks, which includes activities such as fuel economy labeling and CAFE auditing. Fuel economy labeling provides fuel economy values and other information to consumers. These labels are used by manufacturers to market their products and meet the requirements of the Energy Policy and Conservation Act (EPCA). Other fuel economy activities include confirmatory testing of vehicles, and reviewing and auditing manufacturers' vehicle and engine tests, calculations, and labels. EPA oversees CAFE activities that determine each manufacturer's compliance with the CAFE standards specified in the EPCA.

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<sup>2</sup>Recoverable costs are described in detail in Section III, below.

### **Selective Enforcement Auditing (SEA)**

To further ensure compliance with the CAA, EPA has the authority to test a sample of new vehicles or engines covered by a certificate as they leave a manufacturer's assembly line (production vehicles and engines) and to revoke or suspend any certificate of conformity, in whole or in part, if the Administrator determines that all or part of the vehicles or engines covered by the certificate do not conform with the regulations under which the certificate was issued. SEAs involve selecting vehicles and engines off of the assembly line and monitoring their testing at various production plants around the world to determine compliance with emission standards.

### **In-Use Compliance Programs**

A manufacturer may be held required to remedy the nonconformance of certain vehicles or engine if the Administrator determines that a substantial number of any class or category of vehicles, although properly maintained and used, do not comply with applicable emission standards throughout their useful life. EPA conducts a number of in-use evaluation and testing programs to ensure that vehicles and engines continue to meet emission standards throughout their useful life. In-use evaluation includes testing and/or screening in-use vehicles and engines and reviewing manufacturers' in-use vehicle and engine test data. In-use testing may be conducted at EPA's facility or a contracted facility.

EPA's costs to conduct SEAs and these various in-use compliance evaluation and testing programs vary by industry. Where the regulations require manufacturers to provide production line testing data or in-use test data, EPA's testing costs will be reduced.

## **III. The Fees Cost Analysis Methodology**

As a result of an in-depth study of the resources expended on the MVECP, this cost analysis provides a detailed account of the recoverable costs associated with the program. It sets forth the costs of the MVECP and the calculations that form the basis for each fee.

### **A. Fees Cost Analysis Methodology: General Steps**

The methodology for the cost analysis involved completing a number of steps. A more detailed explanation of these steps along with a breakdown of the recoverable costs within the OTAQ divisions is provided later. The steps below provide a general overview of the method used to set each of the proposed fees.

- 1) *Examined 2001 OTAQ budget to determine which OTAQ programs are MVECP related.*

The FY 2001 budget lays out the various programs within the OTAQ divisions and the actual costs associated with them. We examined this budget to determine which programs in OTAQ are compliance-related. The FY 2001 budget was used as a starting



point because it contained the most current data available for calculating the costs of any compliance activities.

- 2) *Identified and specified all current costs associated with the OTAQ Divisions that conduct or support the MVECP related programs (LOD and CCD), and identified and specified all projected future certification and compliance program costs under MVECP.*

We found that the majority of these compliance programs were and still are conducted by the Certification and Compliance Division (CCD) and our Laboratory and Operations Division (LOD). So at this point we focused primarily on CCD and LOD compliance activities and programs. Other divisions that currently do not incur any compliance-related costs were not considered. The cost analysis calculations are based on the actual dollar amounts from the budget. As stated earlier, the FY 2001 OTAQ budget (including LOD and CCD specific budgets) details the costs of running current compliance programs and other costs associated with these two Divisions. We adjusted those costs to FY 2003 levels for our current programs as well as known future compliance programs. Cost estimates for future compliance programs are based on the cost estimates for the equipment and contract needs and the projected job functions required to support the new compliance-related regulations. For example, due to new requirements, we knew heavy-duty testing would be expanded and this had to be reflected in the costs. Our projected costs are detailed in the cost analysis worksheets described later in this document.

- 3) *Determined the appropriate methods to allocate certain MVECP costs as recoverable or non-recoverable (Allocation Type 1) and appropriate methods to apportion MVECP costs to industry categories (Allocation Type 2).*

We used two types of allocation in this cost analysis. Allocation Type 1 was used to determine what portion of a general budget item cost is recoverable as a MVECP cost. The recoverable portion of a cost is determined by the amount of the cost that is dedicated to the MVECP. Allocation Type 2 involved allocating the recoverable costs to industries (industry categories) that are covered by the MVECP as determined under the step performed under Allocation Type 1. We used five (5) allocation methods to distribute costs. A more detailed explanation of allocation types and methods are described below and later in these general steps.

#### **Allocation Type 1-Appportioning Costs as Recoverable and Non-recoverable**

The costs that were identified as related to the MVECP, as discussed in step 2, fell into three different categories, 1) those that were one hundred percent MVECP costs and , therefore, fully recoverable, 2) those that were not related to the MVECP and, therefore, non-recoverable and 3) those costs that were partially recoverable and partially non-recoverable. Allocation Type 1 involved separating the recoverable cost from the non-recoverable costs for each budget item. The recoverable portion of a cost is determined by the amount of the cost associated with the MVECP.

### **Allocation Type 2-Appportioning Recoverable Cost by Industry Category**

Allocation Type 2 involved allocating the recoverable costs to industry categories. These industry categories are discussed in detail in Step #5 below. We based these categories on the types of vehicle and engines that we certify and the types of compliance activities we conduct for these industries. These industry categories are Light-duty (ICIs, LDV without ICIs, and motorcycles), Engines (heavy-duty highway and nonroad compression ignition) and Other (other engines and vehicles).

### **The Five (5) Allocation Methods**

We used five (5) different allocation methods to distribute costs under both Allocation Type 1 and Allocation Type 2. The allocation method used in each case was the most appropriate for allocating the cost involved. The allocation methods all involve ratios except in the case of Actual Count and Actual Cost methods. Below are the five allocation methods followed by example cases of how we used each method.

The five allocation methods are:

- 1) Actual Cost
- 2) The FTE Method
- 3) The Square Foot Method
- 4) The Workstations Method
- 5) The Ratio of Tests Method

### **Explanation and Examples of the Allocation Methods Used:**

#### **1) Actual Cost**

The first allocation method is the actual cost. This method is used as a Type 1 allocation method for which the recoverable cost may be directly calculated. An example of an actual, recoverable cost is the Direct Labor<sup>3</sup> cost that is calculated by counting the direct, recoverable FTE and multiplying by the cost per FTE.

This allocation method is also used as a Type 2 allocation method when costs are directly attributable to individual industry categories. An example of the actual cost allocation to the industry categories are CCD's direct program costs which, as shown on Worksheet #13, have totals attributable to each category that are carried directly to the CCD Summary sheet, Direct Program Cost row.

#### **2) The FTE Method**

The FTE Method is used in this cost analysis as a Type 1 and a Type 2 allocation method. As a Type 1 allocation method, the recoverable portion of a cost is determined by the

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<sup>3</sup> Direct Labor consists of the FTE associated with LOD and CCD's operations, or programs.

amount of the cost that is dedicated to the MVECP. The portion of the cost that is dedicated to the MVECP is determined by presuming that the cost is evenly distributed to the total FTE in a group and the recoverable part of the cost is that associated with the number of direct, recoverable people in the group. Therefore, the recoverable portion of a cost may be calculated by multiplying the cost by the ratio of direct, recoverable FTE to total FTE in that group. For example, if, in our laboratory division (LOD,) there are 100 people and 20 of those people are working on compliance programs, the recoverable ratio is 20 to 100, or 20 percent. So, if we determine the recoverable portion of an indirect cost for LOD, we would multiply the cost by .2 or take 20 percent of that cost. An indirect cost of \$100,000 would be multiplied by .2 for a recoverable cost of \$20,000.

The FTE Method may also be used as a Type 2 allocation method to allocate recoverable costs across industry categories. This method was used to reflect the cost of services to each of the fee categories. This allocation method presumes that the portion of a cost to be allocated to each industry is dependent upon the number of direct, recoverable FTE that work in that industry. The portion of a cost that is allocated to each industry is calculated using a ratio of the direct, recoverable FTE per industry to the total number of direct FTE. The example shown in Table III.B-1 below was used for allocating LOD's costs across industries:

**Table III.B-1**

LOD Direct Recoverable FTE by Industry as a Percentage of Total Direct Recoverable FTE

	Total Light-Duty Vehicles (LDV)	Motor-cycles (MC)	Heavy-Duty Highway (HD HW)	Nonroad Diesel (NR CI)	Other	Total
Recoverable Direct FTE	13	0	2.25	0	1.25	16.5
% of Total	79%	0	14%	0	8%	100%

Direct Recoverable FTE by Industry as a percent of Total Direct Recoverable FTE is used as an allocation unit throughout the cost analysis. In each case the fraction of direct, recoverable FTE by industry divided by total direct recoverable FTE is applied to the entire cost to determine the recoverable portion to each industry.

### 3) The Square Footage Method

The Square Footage method is used as a Type 1 allocation method. This method is used to determine the recoverable portion of a cost by multiplying the cost by a ratio of recoverable square feet divided by total square feet applicable to the cost. This method is used three times in this cost analysis, to determine the indirect labor cost for FTE in LOD's Facilities Services Group, and to determine the recoverable portion of the LOD's Ann Arbor Facilities costs and Building and Facilities costs.

#### 4) Ratio of Workstations

Ratio of Workstations is an allocation method used to determine the recoverable portion of LOD's Information Management Group (IMG). The FTEs in this Group spend the majority of their time servicing workstations. Therefore, the allocation unit used for this group was workstations. This allocation method was used to determine the number of LOD's indirect IMG FTE. To determine the number of IMG FTE we presumed that the group spends an equal amount of time servicing each workstation. The recoverable number of FTE from this group is the number that service recoverable workstations. A recoverable workstation is one that is allocated to confirmatory/compliance testing, compliance related activities and certification review. A ratio of recoverable workstations serviced to total workstations serviced was multiplied by the number of FTE in the group to determine the IMG recoverable, indirect FTE.

#### 5) The Ratio of Tests Method

The Ratio of tests Method is used as a Type 2 allocation method, specifically for determining the allocations for ICI, certification and Fuel economy and in-use within the light-duty industry category for LOD. The allocations were first determined by separating the costs into 1) certification and fuel economy testing and 2) in-use testing. The Direct FTE in LDV were then allocated to the subcategories based on the types of Federal Test Procedure Equivalents (FTPEs)<sup>4</sup> performed. Of the tests performed, 60 percent were for certification and fuel economy and 40 percent were for in-use. Further examination of the test data revealed that 10 percent of the certification and fuel economy tests were conducted on ICI vehicles. Therefore, the costs for the LOD LDV categories were allocated by multiplying the LDV portion of each recoverable cost by the percentage of tests for that category; 6 percent for ICIs, 54 percent for certification and fuel economy and 40 percent for in-use. The Total LDV w/o ICI category is the total of the In-use and Cert/Fuel Economy costs. Once the test percentage was established, it was used to allocate the FTE to the ICI, certification and fuel economy and in-use subcategories. Once the number FTE for each of these subcategories was established, the FTE method was used to allocate the operating costs for the subcategories.

- 4) *Categorized all the MVECP costs into three major categories-direct and indirect labor, direct and indirect operating costs and overall EPA overhead costs and determined the portion of these costs that was recoverable by using a method under Allocation Type 1 (associated with the MVECP).*

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<sup>4</sup>An FTPE is a measure of work used by the lab and is equivalent to the amount of resources needed to perform a standard emissions test called the Federal Test Procedure. All test procedures are expressed in terms of the amount of resources used to perform the Federal Test Procedure. For example, the amount of resources need to conduct the Highway Test Procedure are half of that needed for the Federal Test Procedure. Therefore, the Highway Test Procedure requires .5 FTPE.

All of the costs were divided into three major categories: Labor, Operating and Overhead Costs. The Labor and Operating categories include both direct and indirect costs associated with compliance activities. The recoverable portion of the direct and indirect Labor and Operating costs, those costs attributed to the MVECP, were then determined. The overall overhead costs are costs incurred by other parts of the EPA that support CCD and LOD in conducting the MVECP. The three categories are further described below:

**(A) Labor:**

Labor is the cost associated with the EPA labor force (salary, health benefits, pension, etc.) Total labor costs are determined by two factors -- Full Time Equivalents (FTEs) and the Personnel, Compensation and Benefits (PC&B) rate. An FTE is a unit of measure to equate a full year's worth of work for one employee. The PC&B rate is the average cost of an FTE. The projected 2003 PC&B rate for an FTE that works in the Office of Air and Radiation is \$99,580<sup>5</sup> which is the rate used to determine the recoverable cost of labor for the MVECP. Total labor cost is the product of the number of FTEs and the PC&B rate. We broke the labor cost into two categories – direct and indirect.

*(i) Direct Labor*

Direct Labor consists of the FTE associated with LOD and CCD's operations, or programs. Direct FTE are employees who perform compliance/confirmatory testing, compliance related activities, certification review, regulatory work and testing. In total there are 113.55 direct FTE. The number of recoverable direct FTEs, those that worked directly on the MVECP, was determined by discussions with Senior management and in some cases the specific employee.

The costs for the direct, recoverable FTEs were determined by examining the existing OTAQ 2001 FTE levels and projecting them to the 2003 fiscal year. In some cases, new compliance programs are being planned. The FTE for these programs were estimated via discussions with Senior management. The recoverable, direct FTE include both existing FTE of the current programs projected to 2003 and anticipated FTE for the new compliance programs being planned.

*(ii) Indirect Labor*

Indirect Labor consists of the FTEs that provide support to LOD and CCD's direct FTEs.

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<sup>5</sup> EPA annually calculates the cost of each employee by office. The projected OTAQ PC&B rate for 2003 is based on the FY 2001 actual costs per FTE and includes assumed inflation factors for FY 2002 and 2003. The inflation factors includes increases for cost of living, awards and pay increases. The projected total cost of living increase for 2002 and 2003 is 7%. The total awards increase for 2002 and 2003 is 1%. The projected amount for pay increases was 1% for FY2002 and could be between 1% and 2.35% for FY 2003. We chose to use the more conservative figure of 1% resulting in a total PC&B rate for OTAQ of \$99,580.

In total there are 64.2 indirect FTEs. Discussions with Senior management determined methods of allocating the recoverable portion of each indirect FTE, that portion attributable to the MVECP.

The recoverable portion of each indirect FTE was determined all of the different allocation methods. The appropriate allocation method was determined based upon the driver of the FTEs time which was determined by discussions with Senior management.

**(B) Operating Costs:**

Operating costs include costs associated with contracts, equipment, supplies and infrastructure that are needed for the EPA FTE to conduct compliance activities. These costs include costs for Travel, Training, Communications and NVFEL Laboratory Modernization but do not include Labor costs. Operating costs are split into two categories; Indirect Program Costs and Direct Program Costs.

(i) *Indirect program costs* are those costs for services provided to FTEs that allow them to perform their jobs. These include but are not limited to the costs of office space, computer support, travel, lab modernization and training. Recoverable, indirect program costs were determined by assessing the portion of the cost that was attributable to the MVECP. The recoverable portion of each indirect program costs was determined using different allocation methods. In most cases, the recoverable portion of a cost was determined by using the FTE allocation method. The square foot method was also used.

(ii) *Direct Program Costs* are EPA's costs for compliance work. This includes the cost of testing either at EPA's lab or a contracted testing facility, procurement of vehicles or engines and equipment needed to conduct the tests (excluding lab modernization costs). Also included are the costs of computers used specifically for maintaining test data and maintenance of test equipment in the lab.

The recoverable, direct costs are those that relate directly to the MVECP and were determined by discussions with Senior management and by review of applicable contracts. The costs for the direct, recoverable programs were determined using the actual cost allocation method, by examining the OTAQ 2001 budget and projecting the costs for those programs to the 2003 fiscal year. In some cases, new compliance programs are being planned. The costs for these programs were estimated using contractor estimates and equipment (such as on-vehicle testing units) prices. The recoverable Direct Program Costs include both the cost of the current programs projected to 2003 and the planned program cost estimates.

**(C) Overall EPA Overhead Costs (16.9 percent):**

The Overall EPA Overhead Costs are costs incurred by other parts of the EPA that support CCD and LOD. This includes but is not limited to the OTAQ management above division level and staff, management and staff of OAR and EPA. The Overhead Costs

are determined by multiplying all recoverable costs by a rate which was developed by EPA's Office of the Chief Financial Officer (OCFO), Financial Management Division (FMD) in accordance with Federal Accounting Standard #4<sup>6</sup>. According to Federal Accounting Standard #4, we are able to recover a prorated share of all applicable overhead costs. The rates were calculated based upon the FY2000 actual overhead costs for specified units and the total FY2000 disbursements. The costs come from three levels within the EPA. The rate was developed based upon the overhead costs incurred by the following units:

- 1) National EPA General and Administrative Costs - 7.82%
- 2) Office of Air and Radiation G & A Costs - 5.56%
- 3) Office of Transportation and Air Quality G & A Costs - 3.52%

The above three costs include such overhead costs as EPA's headquarters building and facilities; OTAQ's Judiciary Square office facility in Washington, D.C.; supporting services for information technology; guard services; telephone and computer networks; Human Resources offices in Washington D.C.; and other general support activities.

The total 16.9 percentage was used to develop the current overhead costs. The OCFO used this same methodology to develop this type of rate system for other programs such as Superfund. The overall overhead costs were developed by multiplying the total, recoverable costs by the 16.9 percent overhead rate. It should be noted that this overhead cost includes the facilities operating costs for OTAQ's Washington, D.C. staff, but not for OTAQ's Ann Arbor staff. As a result there are no other facilities operating costs for OTAQ's Washington, D.C. group. Only OTAQ's facility operating costs for Ann Arbor are shown in the cost analysis worksheets.

- 5) *Separated industries into fee categories by their associated and similar level of MVECP costs of certification and compliance services.*

Our next step in the cost analysis was to allocate each cost (ie. labor and operating costs) to industry categories: Light-duty (ICIs, LDV without ICIs and motorcycles), Engines (heavy-duty highway and nonroad compression ignition) and Other (other engines and vehicles). The categories were determined by separating the industries by the testing and compliance services conducted for each category so that each category pays fees only for the services that it receives.

The first category is *Light-Duty*. It includes light-duty vehicles and trucks and

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<sup>6</sup>A copy of this document has been placed in EPA Air Docket No. A-2001-09. The docket is located at The Air Docket, 401 M. Street, SW., Washington, DC 20460

motorcycles. Also included in this category, because the compliance programs are so similar to the light-duty programs, are medium-duty passenger vehicles and complete heavy-duty highway vehicles that are tested as light-duty vehicles and certified using light-duty procedures<sup>7</sup>. ICI's and motorcycles are subcategories under light-duty because the amount of testing and in-use activity is different for these industries and, therefore, the costs for these industries are calculated separately.

The second category is *Engines (Heavy-Duty Highway and Nonroad Compression Ignition)* for which there is an EPA certification testing and/or in-use compliance program. This category includes heavy-duty highway engines, and nonroad compression ignition engines that are regulated under 40 CFR Part 89.

The third category is *Other engines and vehicles*. Currently, certification requests for these industries include or will include only certification review. This category consists of small spark ignition engines, all marine engines, locomotives, large nonroad spark ignition engines, recreational vehicles and engines, heavy-duty engine evaporative systems, and California-only heavy-duty engines.

A further discussion of the categories is included in Section IV, Fees Schedule and Structure, below.

Within each of the categories we examined the compliance activities for each industry to more directly establish the costs for the industries. The Light-Duty category includes light-duty vehicles and trucks, motorcycles, medium-duty passenger vehicles, and complete heavy-duty vehicles. We further examined light-duty vehicles and trucks and determined that this category could be further broken down into federal light-duty vehicles and trucks, California-only vehicles and trucks and ICIs based on the different amount of resources and effort (labor and operations costs, etc.) spent on each category.

Currently, the EPA program for federal light-duty vehicles and trucks includes certification review, certification testing and in-use testing. The program for California-only light-duty vehicles and trucks includes certification review and certification testing. California has established an in-use program to which these vehicles and trucks are subject. The ICI program consists of certification review and some pre-certification testing. We currently do not conduct in-use tests on ICI vehicles. Engines that manufacturers choose to test as compete vehicles are tested as light-duty vehicles under this category.

The second category is called Heavy-Duty Highway and Nonroad Compression Ignition.

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<sup>7</sup> Manufacturers have the option of having heavy-duty engines tested on an engine dynamometer and meeting heavy-duty engine standards or having heavy-duty engines tested in complete vehicles on a vehicle dyno and meeting light-duty vehicle standards.



EPA's compliance programs for both include certification review and testing, selective enforcement audits and in-use testing. Although the programs are similar, the industries receive a different amount of oversight and, therefore, the costs of the programs will be examined separately.

The third category, Other, currently includes or is projected to include certification review and in some cases, review of production line test data. In the future, as the compliance programs for this category mature, the program costs for this category may significantly change. At that time, the Agency will revise this cost study and may propose new fees under a separate regulation.

6) *Allocated recoverable costs from step 4 by fee category by using a method under Allocation Type 2.*

Our next step was to allocate each recoverable cost to the fee categories. Again, recoverable costs are expenses associated with providing a unique service to a specified set of customers for the MVECP, in this case the various industry types.

We started by allocating our direct, recoverable labor. Direct, recoverable labor was allocable directly to each fee category because we determined from Senior management and through interviews with individuals the amount of time individuals spent working on each industry or fee category.

In some other cases we could directly relate a specific cost to a category, for example the programs (and their associated contracts, etc.) listed on Worksheet # 13 are designated for different categories. The costs for these projects are listed for each fee category under CCD Compliance Programs in the Direct Program Costs row of Worksheet #4. In most cases, though, other Type 2 allocation methods of allocation were necessary.

Within the Light-Duty category, the costs are further allocated between In-use, Certification and Fuel Economy, ICI and Motorcycle costs. The columns for these allocations are shown specifically in the LOD and CCD worksheets (Worksheets #3 and #4). The allocations for these costs were determined differently for CCD and LOD because of the difference in the divisions. In the CCD summary sheet, the costs for the ICI, In-use and Cert/Fuel Economy were determined using the FTE allocation method, by applying a ratio of the direct, recoverable FTE that work on each category to the direct, recoverable FTE that work in the LDV category. The number of FTE were determined by interviews with Group Managers as shown in Worksheet #14 with one of the FTE from the LD Cert category devoted specifically to ICI work. The LDV w/o ICI fee category in Worksheet #1 is the total of LOD's and CCD's In-use and Cert/Fuel Economy costs.

Allocations for the three light-duty columns for LOD was determined using the Ratio of Tests allocation method, as described in General Step 3.

- 7) *Determined a fee schedule based upon recoverable costs for each certificate type under the fee category and the number of known and projected certificates issued annually for that certificate type.*

After the direct and indirect recoverable costs attributed to the MVECP were allocated to the various industry/fee categories we determined the fee schedule. The fee schedule, see Worksheet #2, presents the fee payment amount for each certification request type. The certification request type is the vehicle or engine type a manufacturer is requesting to certify. The request type falls under one of the three industry categories: Light-duty (ICIs, LDV without ICIs and motorcycles), Engines (heavy-duty highway and nonroad compression ignition) and Other (other engines and vehicles). The fee amount was determined by adding up the recoverable costs for each certification request type and dividing that amount by the number of certificates issued yearly (per industry). We obtained the certificate number from the certification database which stores the number of certificates EPA issues. The fee schedule is shown on cost analysis Worksheet # 2 and is also presented later in this document.

## **B. Overall Cost Summary** (Worksheet #1)

The overall cost summary worksheet reflects the EPA's projection of total annual costs incurred for the Motor Vehicle and Engine Compliance Program. For each item, except the Overall EPA Overhead rate, the cost for each item represents the sum of the costs from the LOD and CCD summary. A discussion of the determination of the Overall EPA Overhead rate is located in the Overview of Methodology above.

Please note that because the numbers in this discussion have been truncated at two decimals, the numbers discussed below may be slightly different than the totals stated on the Worksheets #3 and #4. This is because the numbers in the cost analysis may be carried out farther than two decimals and, therefore, the product of these numbers may be slightly different than that of truncated numbers.

### **Labor:**

*Direct Labor* are the FTE associated with LOD and CCD's operational groups. Operational Groups perform compliance/confirmatory testing, compliance related activities, regulatory work and testing. In total there are 113.55 FTE in LOD and CCD's operational groups. The number of recoverable direct FTEs (59.08) is multiplied by the PC&B rate of \$99,580 which results in the recoverable direct labor cost of \$5,883,186. The recoverable direct labor costs for each industry are the sums of LOD and CCD's costs for each industry, taken from Worksheets #3 and #4.

*Indirect Labor* are the costs associated with LOD and CCD's support groups that provide services to the operational groups. The 64.2 FTE are the sum of the indirect FTE from the two

divisions. The recoverable number of indirect FTEs (21.39), the sum of the LOD and CCD indirect FTE, is then multiplied by the PC&B rate of \$99,580, which results in the recoverable indirect labor cost of \$2,130,459. The recoverable indirect labor industry costs are the sums of LOD and CCD's costs for each industry, taken from Worksheets #3 and #4.

### **Operating Costs:**

Includes, but are not limited to, contracts, equipment, supplies and infrastructure that are needed for the EPA direct recoverable FTE to conduct compliance activities. These costs do not include labor costs. Operating costs are split into two categories; Indirect Program Costs and Direct Program Costs.

Indirect Program Costs are those costs for services provided to FTEs that allow them to perform their jobs. These include but are not limited to the costs of travel, office space, computer support and training.

*Travel* – The total and recoverable travel dollars were obtained from the LOD and CCD worksheets #3 and #4.

The total recoverable travel dollars (\$111,665) industry allocations are the sums of the LOD and CCD allocations for the industry categories.

*Seniors* (SEEP employees)-EPA participates in a program with the National Senior Citizens Education and Research Center called the Senior Environmental Employment Program (SEEP) whereby the agency contracts with an organization that provides qualified retired persons to perform duties for the agency that are not performed by the existing workforce. The costs associated with this grant program are considered operating costs. Each division allocates money for the SEEP employees that work for the division. The total recoverable cost for SEEP employees (\$465,807) is the sum of the LOD and CCD SEEP recoverable employee costs. The allocations are the sums of LOD and CCD's costs for each industry. See worksheets 3 & 4 for more detail.

*Building and Facilities Purchase and Repairs*—The total recoverable cost for Building and Facilities Purchase and Repairs is the unrounded total taken from Worksheet #11. Industry allocations for Building and Facilities Purchase and Repairs are the sums of the LOD and CCD costs for each industry.

*Miscellaneous and Office Supplies*-The total for this category, the determination of the recoverable portion and the industry allocations are carried forward from the CCD summary sheet and is discussed in greater detail in the CCD section (Section V.B) later in this document.

*Training*— The recoverable training costs and industry allocations are the sum of the LOD and CCD training costs.

*Laboratory Modernization* – The laboratory modernization costs and industry allocations were carried forward from the LOD summary sheet. The details of the recoverable portion of the laboratory modernization and the allocation to the industries is are discussed in later in Section V.A of this document and in the discussion of Worksheet #11.

*Communications*-The communications cost is the sum of LOD's and CCD's Communications categories in Worksheets #3 and #4. The industry allocations are sums of the divisions' allocations. The communications costs and what they include are discussed in detail in the discussion of LOD's costs, Section V.A below.

*Ann Arbor Facilities Operating Costs and Safety, Health, and Environmental categories*– The Ann Arbor Facilities Operating costs are carried forward from Worksheet #9. The Safety Health and Environmental industry allocations are the sum of LOD's and CCD's Ann Arbor Facilities Operating Costs.

Direct Program Costs - includes the cost of testing either at EPA's lab or a contracted testing facility, procurement of vehicles or engines and equipment needed to conduct the tests. Also included are the costs of computers used specifically for maintaining test data and costs of maintenance of test equipment in the lab:

*CCD Compliance Programs*-These costs and industry allocations consist of the CCD Program Compliance costs carried forward from the CCD Summary Sheet (Worksheet #4) for each of the respective industries.

*Core Testing Operations* –These costs are LOD's core testing operations costs carried forward from the LOD Summary Sheet (Worksheet #3). The costs are discussed in detail below in the description of Worksheet #12.

## **IV. Fees Schedule and Structure**

### **A. Determination of the Fee**

The event that triggers EPA costs related to the MVECP is the certification request. By seeking certification, a manufacturer potentially becomes involved in a number of EPA activities, including certification, fuel economy, SEA, and in-use compliance. The proposed fee structure, outlined on Worksheet #2, is based on activities associated with the MVECP from which EPA may recover costs. The following is a detailed description of the development of the proposed fee structure.

### **B. Types of Certification Requests**

There are three types of certification requests that initiate EPA activities. The first type is LDV,

which includes on-highway motorcycles, LD vehicles and trucks, LD ICI vehicles and trucks, medium-duty passenger vehicles and complete heavy-duty vehicles. The second type includes heavy-duty highway engines that are highway heavy-duty compression and spark ignition engines, and nonroad compression ignition engines that are regulated by 40 CFR part 89, and the third type, for the purpose of this cost analysis is referred to as “Other” which includes marine compression and spark ignition engines, nonroad spark ignition engines and locomotive engines, all California-only engine certificates submitted for engines that are intended for sale only in California and heavy-duty highway gasoline vehicle evaporative systems. In the near future EPA anticipates additional nonroad certification requests from the all-terrain vehicle, snowmobile, large gasoline, and recreational diesel engine industries which, for purposes of the fee determination, are included in the Other category.

A LDV/LDT certification request type may also include an evaporative emission family certification request. While a separate fee could be charged for each unique evaporative emission family, it is unnecessary to do so. This is because the certification requests for evaporative emission families closely parallel requests for engine-system combinations. The single fee that is proposed for LDVs and LDTs includes the cost of both evaporative emission family compliance and engine-system combination compliance. The proposed fee for each unique engine-system combination includes all combinations of evaporative emission families.

Conversely, EPA requires a separate fee for HDV evaporative certification requests. HDV evaporative certification requests may include HDEs that were certified previously by a manufacturer different than the one requesting HDV evaporative certification. To ensure that each manufacturer is responsible for an appropriate portion of certification costs, EPA believes it is necessary to separate the activities for the HDE certification request from the HDV evaporative certification request. Separate fees for evaporative systems may also apply to some nonroad engines. For the purpose of this fee determination, the evaporative system certification applications are included in the Other category.

Within the LDV/LDT certification request type, there are three subcategories of requests that entail different amounts of Agency oversight. During our cost analysis we identified that the Agency spends less effort on motorcycles, California vehicles and ICI vehicles than on Federal (or 50-state) certification requests in this category. This is mainly due to the amount of effort spent by the Agency conducting in-use activities.

EPA currently conducts very little motorcycle testing. A limited in-use testing program is being planned for motorcycles which is addressed in the description of Worksheet #12 below. In-use testing for California LDV/LDTs are generally conducted by the state of California and not EPA. The ICI manufacturers must supply the Agency emission test results for one-out-of-three vehicles (for the first 300 vehicles, then one-out-of-five beyond 300 vehicles) imported under a certificate; this testing mitigates the need for traditional Agency-run in-use testing. Also, ICIs generally import too few vehicles to conduct a traditional in-use testing program using normal procurement methods. Since these categories entail different costs to the Agency, we determined that these categories should be separated from the general LDV/LDT category when calculating fees.

For the categories other than Light-Duty, the Agency either did not have any experience with ICI certification or had no evidence that suggested that the costs to handle ICI certification requests would be significantly different from the rest of the certification requests. Consequently, for these other categories, ICI and non-ICI certification requests were included in the same analysis and both types of manufacturers would pay the same fee.

Medium-duty passenger vehicles and complete heavy-duty vehicles, while heavier than light-duty vehicles, are tested in the same way as light-duty vehicles and, therefore, the compliance programs for these classes of vehicles are included in the light-duty analysis. The manufacturers of these vehicles will pay light-duty fees.

The Heavy-Duty Highway engines and Nonroad Compression Ignition engine category is separated into two different fees for the two engine types. The fees differ by the amount of effort spent by the agency on the engine types. Currently, EPA's heavy-duty highway engine compliance program is more developed than the program for nonroad compression ignition engines.

The Other category has no divisions within the category because all of the vehicle and engine types receive the same amount of effort from the Agency.

### **C. Description of Vehicle Fee Groupings**

The Table IV-D.1 below shows the regulated industries and the compliance activities that are either authorized under EPA regulations or are proposed. Under section 217 of the CAA, EPA is authorized to establish fees for specific services it provides to vehicle and engine manufacturers for: (1) new vehicle or engine certification; (2) new vehicle or engine compliance monitoring; and (3) in-use vehicle or engine compliance monitoring and testing. In being consistent with the CAA our compliance activities fall under (4) categories: Certification, Fuel Economy, SEA and In-use. Where the activity is normally borne by the manufacturer, such as mandatory production line testing (PLT) or in-use testing, the proposed fees include only the costs of receiving, reviewing and entering the submitted data. The proposed fees are based on the compliance activities that EPA performs in each category.

**Table IV-D.1**

<i><b>Industry</b></i>	<i><b>Vehicle/Engine Types</b></i>	<i><b>Applicability</b></i>	<i><b>Compliance Activities</b></i>
LDV	LD LD ICI	Light-duty trucks Light-duty passenger cars, medium-duty passenger vehicles, complete HD vehicles	Certification, Fuel Economy, SEA, and In-use
	MC	Highway motorcycles	Certification In-Use
HD HW & NR CI	Highway Engines: Heavy-Duty(HD) Diesel (CI)& Gas (SI)	(HD) Engines for Trucks and Buses	Certification, SEA, and In-use
	Nonroad (NR): Diesel (CI) Engine	Engines used in tractors, dozers, cranes, generators, forklifts, lawn tractors	Certification, SEA, and In-use
Other	Marine CI	Engines used to propel a marine vessel	Certification, SEA, and In-Use
	Marine SI	Outboard engines, engines used in personal watercraft	Certification, PLT, and In-use
	Marine IMO	Engines for large commercial vessels	Certification
	NR SI < 19 kW	Lawnmowers, chainsaws, generator sets, weed wackers	Certification, PLT, and In-use
	Locomotives	Locomotive engines	Certification, PLT, and In-use
	HD HW Evaporative	HD HW Trucks	Certification
	California Only Engines (HD HW & NR)	Engines used in HD HW trucks, tractors, dozers, cranes, generators, forklifts, lawn tractor	Certification
	Recreational Engines	Snowmobiles, off-road	Certification, PLT, and

	Large SI (in process)	Industrial Engines	Certification, PLT, and In-use
	Marine SI (in process)	In-board and sterndrive engines	under review
	Marine Recreational CI (in process)	In-board for recreational vessels	Certification, PLT, and In-use

#### **D. Explanation of Fee Structure Table**

Worksheet #2 is the Proposed OTAQ Compliance Program Fee Structure by industry. The table shows proposed fees for each industry and the estimated fee per unit. The table is split up into 3 categories: light-duty vehicles, heavy-duty highway and nonroad CI engines, and other engines.

##### Current Fees

EPA currently collects a fee for highway motorcycles, light-duty vehicles (Federal and California certification) and heavy-duty highway engines and evaporative systems and the respective amounts are:

LD Federal:\$27,211	LD California: \$8,956
HD HW Federal: \$12,584	HD HW California: \$2,145
HD HW Evap: \$2,145	Motorcycle: \$840

Our fees rulemaking proposes that EPA collect fees from these industries as well as nonroad CI engines, marine engines, nonroad SI engines, locomotive engines and recreational vehicles. Proposed fees were determined by dividing the total recoverable costs for each industry by the projected number of certificates.

EPA generally has the authority to conduct the same level of activity for each certification request. The amount of compliance oversight given to the different industries varies depending on the history of the industry and its environmental impact. The proposed fees are based on the compliance activities that CCD currently conducts and plans to conduct in the near future. In 2001, we reviewed applications for certificates of conformity for all certification types. In addition, we performed certification compliance testing and fuel economy confirmatory testing on light-duty vehicles and selective enforcement audits on heavy-duty engines. The proposed fees are based on the current level of activity and planned programs for the heavy-duty highway engines, nonroad CI engines and highway motorcycles. In the event that it becomes necessary to provide more scrutiny to an industry, EPA will address the change in costs in a future fees rulemaking.

Light-duty and Highway Motorcycles (Worksheet #2, Column 1)



This category includes fees for highway motorcycles and light-duty vehicles. Light-duty vehicles are passenger cars and trucks. In addition, light-duty fees will apply to medium-duty passenger vehicles and complete heavy-duty vehicles because these vehicles will receive the same services for certification as passenger cars and trucks. Medium-duty passenger vehicles and complete heavy-duty vehicles were recently regulated. Although certification is not yet required for these categories of vehicles, we are including them in anticipation of certification requests for these industries in the near future.

*Highway motorcycles*-The Grand Total Recoverable Cost for highway motorcycles indicated on the Overall Summary (Worksheet #1) is \$466,246. The number of certificates granted for MY2000 is 193. Dividing the total cost by 193 certificates results in a proposed fee per certificate of \$2,416. The industry sales for the MY were 386,127. Dividing \$466,246 by 386,127 yields an estimated cost of \$1.21 per motorcycle.

*Light-Duty (non-ICI)*-The Grand Total Recoverable cost for light-duty is \$12,767,802. The non-ICI certification and fuel economy portion of the cost is determined by adding the grand totals for those columns in the LOD and CCD summary sheets, \$3,070,721 and \$2,804,477 respectively, and multiplying by Overall EPA Overhead cost (16.9%) for a total of \$6,868,106. This number, divided by the number of requests for certification and fuel economy services (348 federal, 57 CA, Total: 405) results in \$16,958 per certificate.

The in-use portion of the LDV cost was determined by adding the grand totals for those columns in the LOD and CCD summary sheets, for a total of \$5,899,697. This number, divided by the number of certificates that receive in-use services (348 federal) results in \$16,953 per certificate. Federal certificates will have a fee of \$33,911 that includes costs for certification, fuel economy (\$16,958) and in-use services (\$16,953). California certificates that only receive certification and fuel economy services from the EPA will have a fee of \$16,958.

Dividing the total recoverable cost to the light-duty industry by the annual industry sales (15,000,000) results in an average cost of \$0.85 per vehicle.

*ICI*- The Grand Total of recoverable cost for LD ICIs is the sum of the ICI columns on the LOD and CCD worksheets, \$713,482. The fee per engine family is the total cost divided by the number of engine families, 85, for a total proposed fee of \$8,394 per engine family. The price per unit was determined by dividing the total \$713,482 by the industry sales (402) for a total of \$1,775.

#### HD Highway and Nonroad CI Engines (Worksheet #2, Column 2)

The second category includes heavy-duty highway diesel and gas engines as well nonroad

diesel engines regulated under 40 CFR part 89. The only diesel engines not included in this category are marine diesel engines and locomotives.

The cost of the compliance programs for the two industries is \$3,956,759 and \$1,300,155 as shown in the Overall Summary sheet (Worksheet #1). These industries were listed together in this category because the EPA has the authority to conduct the same compliance measures in both industries including certification, selective enforcement auditing and in-use testing.

*Heavy-duty Highway Diesel and Gas Engines*-The proposed fees for the highway diesel and gas engines were determined by dividing \$3,956,759 by the number of certificates issued for these industries in model year 2001 (130). This results in a proposed fee of \$30,437 per certificate. The fee per unit was determined by dividing \$3,956,759 by the industry sales for highway diesel and gas engines in MY 2000 resulting in a per unit cost of \$2.45.

*Nonroad Diesel*-The proposed fee for nonroad CI engines was determined by dividing \$1,300,155 by the number of certificates issued for nonroad CI engines in model year 2000 (603). This results in a proposed fee per certificate of \$2,156. The fee per unit was determined by dividing \$1,300,155 by the industry sales for heavy-duty nonroad diesel in MY 2000 resulting in a per unit cost of \$1.48.

#### Other (Worksheet #2, Column 3)

The third category includes all nonroad industries not covered under 40 CFR part 89. This includes, marine SI, marine CI and IMOs, nonroad spark ignition engines, and locomotives. In addition, fees are being considered for recreational vehicles and other classes of marine engines, and large nonroad SI engines, in conjunction with a separate rulemaking controlling emissions from those nonroad sources that is currently under development. In anticipation of certification requests for these industries, we are including them in our fee calculation. The certificate requests for heavy-duty, highway evaporative systems and California-only engines are also being considered here as they currently receive only certification services from EPA. They will be included whenever we refer to the Other certificate requests below.

These industries were put together in this category because they receive the same amount of compliance services from the EPA. As stated above, some of these industries conduct their own production line and in-use testing and EPA provides oversight in the event of noncompliance. Some of the industries are newly regulated and do not have established compliance programs. Still other industries are not yet subject to regulation and we cannot anticipate our need to test these engines beyond certification.

Because each certificate from these industries is given the same level of review, it is appropriate that the fee per certificate for each industry is the same. Therefore, to determine the proposed fee per certificate, the cost for the category, \$874,108, was divided by the total number of certificates that were issued in model year 2000 or that are anticipated when the

industries begin certification (1,027) for a fee of \$827 per engine family.

## **V. Fees Cost Analysis Breakdown by Applicable Divisions**

### **A. Laboratory Operations Division (LOD)**

#### **1. Overview of LOD Division Structure and Functions**

LOD consists of two operational groups and four support groups. The operational groups are:

**Advanced Testing Group (ATG)** – conducts research for advanced engine technologies. Costs associated with this group were deemed non-recoverable.

**Compliance/Development Testing Group (CDTG)** – performs compliance and confirmatory testing for light-duty vehicles, and heavy-duty and nonroad engines. The group also performs testing for regulatory work. The portion of the groups's work on compliance and confirmatory testing for light-duty vehicles, and heavy-duty and nonroad engines is recoverable.

The four support groups of LOD are:

**The Testing Services Group (TSG)** is comprised of three smaller teams: Data Team, Chem Lab Team and Maintenance Team. A portion of each team's work is recoverable. TSG supports the ATG and CDTG groups by providing data collection, chemical analysis and maintenance work for ATG and CDTG test sites. TSG also provides correlation work for the other groups and provides parts and supplies.

The Data Team develops and maintains computer systems for the operational groups.

The Maintenance Team calibrates equipment in the laboratory, performs minor repairs, performs diagnostics in test cells, names gases and does other ad-hoc work required to keep the laboratory running smoothly.

**The Information Management Group (IMG)** provides all necessary information management services to NVFEL and is organized into two sub-groups -- The Program Management Network (PMN) and the Laboratory Network System (LNS). A portion of each group's work is recoverable. The PMN provides support services to all operations except for laboratory testing. The LNS provides support services for laboratory testing.

**The Facilities Services Group (FSG)** is comprised of three smaller groups; Facilities, Purchasing and Quality Control. As a whole, FSG provides basic infrastructure services to the five divisions in NVFEL and a portion of the costs of each group is recoverable.

These services include but are not limited to management of housekeeping, security services, HVAC systems, procurement, and quality control.

**Immediate Office (IO)** – performs the administrative tasks to keep the LOD operating effectively and efficiently.

## 2. LOD Data Collection Steps

For LOD, the general methodology steps, two through six, described earlier (Section III. A.) were used in collecting cost and program information. The combined steps below are followed by a detailed description of the data collection process.

Our steps started with looking at the fiscal year (FY) 2001 LOD budget for programs and costs. Next, we pinpointed only compliance-related programs and costs within LOD. After projecting the cost of our current compliance programs, we determined the costs of future compliance programs. Senior management expertise was used in determining our labor and operating costs for future compliance-related program including LODs compliance testing needs. The determination of the fee categories were completed and followed by the allocation of the costs by fee categories. A more detailed explanation involving these steps is given below with references to the LOD costs analysis worksheets.

LOD's costs are based upon annual expenses which include direct and indirect labor; travel; Senior Employee contract cost (which is discussed below); facilities operating costs for the Ann Arbor facility; training, safety, health and environmental costs; costs of lab modernization; communications costs; building and facility costs; and core testing operations. Senior Management was asked to determine the number of recoverable FTE by work group ( e.g. the Compliance/Development Testing Group, Testing Services Group, Facilities Services Group, Information Management Group, Advanced Testing Group and Immediate Office within LOD) and recoverable core testing operations costs. The 2001 Budget was used as a guideline for costs with projections made to future years when the current costs did not reflect a standard or constant cost. In conjunction with the 2001 budget, we used contracts to verify indirect program costs and direct program costs when available and we also interviewed Senior management when the recoverability of costs was not easily determined with respect to the MVECP fees program. The combination of these sources was used to develop the recoverable costs in this cost analysis.

The compliance-related costs were separated into two categories:

**LOD Labor** - consists of EPA employee labor costs. Using labor costs from previous fiscal years and projecting to 2003, the costs per OTAQ employee are an average of \$99,580.

*Direct Labor*-Direct labor costs allocated to this study were developed using the applicable number of recoverable FTEs, which were determined by the actual count

allocation method, multiplied by the PC&B rate of \$99,580 for a recoverable total of \$697,060.

Actual Count – used as an allocation unit if work performed directly impacted the services offered by the Compliance Development and Testing Group. This type of allocation was used for the Compliance Development Testing Group and Advanced Testing and Testing Services Group. The Senior managers were able to directly determine the total amount of FTE expended on compliance and confirmatory testing work. Based upon the recoverable FTE, labor costs were calculated by multiplying the FTE by the PC&B rate of \$99,580.

*Indirect Labor*-Based upon the information the LOD Senior Management shared, the following allocation units were used to determine recoverable, indirect PC&B costs FTE:

Several allocation methods were used if FTE did not have a unique link to the CDTG and it was not possible to use the actual count allocation method. The FTE allocation method, the workstation allocation method, and the square footage allocation method were used to determine the recoverable number of FTE in the Immediate Office, Facilities Service Group, Testing Services Group and the Information Management Group.

- Immediate Office used the FTE allocation method since it is the primary driver of the labor costs of the Immediate Office. The Immediate Office FTE expend their time ensuring FTE are properly deployed and have the necessary resources to achieve the goals of the laboratory. Thus EPA used the Direct Recoverable LOD FTE divided by LOD's Total Direct FTE to obtain the allocation of time spent that is recoverable to the MVECP.
- Information Management Group – Based on an interview with the Information Management group manager, the Ratio of Workstations was used to allocate the recoverable portion of this group. The allocation is discussed in detail in the General Methodology Steps, number 3, Section III-A above.
- Facilities Service Group - This group does not provide any unique service to the Compliance and Confirmatory Process, therefore FTE were allocated using the square footage allocation method. Square footage serviced is the unit of measure is the standard measure of work used by this Group. Recoverable FTE were determined by multiplying the percentage of recoverable square footage by the number of FTE. The percent of recoverable square footage was determined by examining which areas were allocated for activities directly related to compliance and confirmatory activities and dividing by total square footage.

**LOD Operating Costs** – consists of Indirect Program Costs and Direct Program Costs. These costs are the costs of contracts, parts, supplies, and infrastructure, excluding PC&B costs. These costs were obtained from budgets, contracts and interviews with

subject matter experts.

Indirect Program Costs are non-labor related costs that are incurred by LOD that are not directly associated with confirmatory and compliance activities but are required to assure daily business operations. These costs include travel, training, senior costs, facilities and safety, health and environmental costs.

Each cost was examined separately to determine the recoverable portion using the allocation methods discussed above. The individual costs are discussed below and are also explained in the individual worksheets. Once costs were categorized, we determined the portion of the cost that was recoverable. Then the recoverable cost was allocated to the industry categories.

Direct Program Costs are the costs of testing, vehicle and engine procurement and equipment needed to conduct tests. Each program cost was examined to determine the recoverable portion as explained in Worksheet #12. Then the recoverable cost was allocated to the industry categories.

### **3. Explanation of LOD Summary Sheet (Worksheet #3)**

This worksheet provides a summary of the LOD's calculation of recoverable costs. It brings forth data collected on the more detailed background worksheets. This sheet is divided into two main cost categories: Labor and Operating Costs. Labor costs are split between direct and indirect labor. Operating costs are also split into two categories; Indirect Program Costs and Direct Program Costs. The grand total recoverable costs are carried over to the Overall Cost Summary, Worksheet #1. The summary sheet also allocates the recoverable cost to their respective industry categories (e.g. LDV (including IC and LDV w/o ICI,) MC HW, HD HW, NR CI, and Other. The costs for each fee category are also carried over to the Overall Cost Summary Worksheet (#1).

Please note that, as discussed above, because the numbers in this discussion have been truncated at two decimals, the numbers discussed below may be slightly different than the totals stated below and those on the worksheets. This is because the numbers in the cost analysis may be carried out farther than two decimals and, therefore, the product of these numbers may be slightly different than that of truncated numbers.

#### **Labor:**

*Direct-* These are the costs associated with LOD employees who perform regulatory, compliance and confirmatory related work. The 39 total direct FTE represent the current FTEs as of FY 2001. Worksheet # 5 shows the total number of FTE per operational group (CDTG and ATG) and the portion that is recoverable to the MVECP. The recoverable number (as opposed to the total direct FTE of 39 for LOD) of direct FTEs (7) is then multiplied by the PC&B rate of \$99,580 which results in the recoverable direct labor cost of \$697,060. The recoverable direct labor cost is allocated to each industry using the

actual cost allocation method, based upon work performed by recoverable FTEs for that industry.

The entire recoverable, direct labor cost was allocated only to the light-duty industry because the direct, recoverable FTE in LOD currently test only light-duty vehicles and light-duty trucks. As discussed in General Methodology Step #3 above, of those FTE, 6 percent work on ICI testing, 54 percent work on certification and fuel economy while 40 percent work on recall activities, based upon review of Federal Test Procedure Equivalents (FTPEs) performed as described in the General Steps section above. The labor cost for ICI was determined by multiplying the compliance cost \$697,060 by .06 for a total of \$41,824. The certification and fuel economy was determined by multiplying the compliance cost, \$697,060 by 0.54 to calculate the Certification/Fuel Economy cost of \$376,412. The In-use cost was calculated in the same way using 0.4 as the multiplier, resulting in a cost of \$278,824. The Total LDV without ICI column shows the totals of the Cert/Fuel Economy and the In-use columns.

*Additional Direct and Indirect-* The description of Worksheet #7 contains an account of the additional LOD labor needs – 9.5 direct and 1.5 indirect FTE. Since these FTE are specifically for compliance programs as shown in Worksheet #7, all of the labor costs for these FTE are recoverable. The labor costs are determined by multiplying the FTE by the PB&B rate of \$99,580. Worksheet 7 shows that 6 direct FTE and 0.5 indirect FTE are needed for LD. The LD direct and indirect additional FTE costs are distributed between ICI (6%), Cert/FE (54%) and Recall (40%) for direct totals of \$35,849, \$322,639 and \$238,992, respectively and indirect totals of \$2,987, \$26,887 and \$19,916, respectively.

The additional FTEs needed for heavy-duty highway are 2.25 direct and 0.5 indirect resulting in costs of \$224,055 and \$49,790, respectively. Testing for Other engines requires 1.25 additional direct and 0.5 indirect FTEs with costs of \$124,475 and \$49,790 respectively.

*Indirect Labor-* are the costs associated with LOD support groups that provide services to the operational groups. The 54 total indirect FTE represent current FTE as of FY 2001. Worksheet #6 shows the total number of current FTE per support group and the portion which is recoverable to the MVECP. A discussion of the methods of determining the recoverable number of FTE follows in the explanation of Worksheet #6 below. The recoverable number of indirect FTEs (14.7) is multiplied by the PC&B rate of \$99,580 to get the recoverable direct labor cost of \$1,466,629. The recoverable indirect labor cost is allocated to each industry using the Ratio of Full Time Employee(FTE) of Recoverable FTE/Total FTE allocation method discussed above.

The total annual recoverable labor cost is \$3,259,069.

### **Operating:**

**Indirect Program Costs** are non-labor related costs that are incurred by LOD that are not directly associated with confirmatory and compliance activities but are required to assure daily business operations. These costs include travel, training, senior costs, facilities and safety, health and environmental costs.

#### Travel and Training

LOD's budget includes travel and training for the division. These items are provided to employees as they are needed for the employee to perform his or her job effectively. LOD does not record or estimate what portion of these funds is used in support of compliance activities. Therefore, the recoverable portions of these budget items were determined the FTE allocation method. The recoverable cost was then allocated across industry categories using the FTE method.

#### *Travel:*

The total recoverable travel dollars (\$10,206) were determined using the FTE allocation method. The recoverable cost was then allocated across industry categories using the FTE method.

#### *Seniors:*

As stated above, the EPA participates in the SEEP program whereby the agency contracts with an organization that provides qualified retired persons to perform duties for the agency that are not performed by the existing workforce. The costs associated with this grant program are considered operating costs. The total cost for the LOD SEEP employees contract is \$672,000. The recoverable cost, determined in the discussion of Worksheet #8 below, is \$140,305. The recoverable cost for SEEP employees is allocated across industries using the FTE method.

*Facilities Operating Costs Ann Arbor:* This category includes the cost of operating the Ann Arbor facility and all of the budget items outlined in the Ongoing Facilities Costs Table (Worksheet #9).

The entire cost for FY 2001 is \$6,540,074. The cost for the entire Ann Arbor facility is included in LOD's budget. Please see discussion on Worksheet #9 for determination of recoverable costs and allocation of recoverable costs by industry. The overall recoverable amount for LOD and CCD is \$1,603,231. LOD's recoverable portion of the cost is \$665,995. CCD's portion of the cost, \$937,236 was carried over to the CCD summary sheet as a recoverable cost.

#### *Training:*

The total recoverable training dollars (\$32,252) were also allocated across industries based on the ratio of direct, recoverable Full Time Employee(FTE) /total direct LOD FTE allocation method.



*Safety Health and Environmental:* The Safety, Health and Environmental budget for the Ann Arbor campus is \$650,000 for FY 2001. The recoverable portion of the budget for each division was determined using the FTE allocation method using the ratio of FTEs in LOD and CCD, individually, to the Total FTEs in the Ann Arbor campus. This ratio was used since LOD manages the SHE budget for all the OTAQ divisions housed in Ann Arbor. CCD's portion of the cost, \$100,261 was carried over to the CCD summary sheet as a recoverable cost.

The LOD portion of the recoverable budget, \$70,964 was allocated across industries using the FTE allocation method.

*Lab Modernization:* The Laboratory Modernization undertaking, as discussed in detail under Worksheet #10, has a total cost estimate of \$14,130,000 of which \$10,030,000 is recoverable. The recoverable portion, determined on Worksheet # 10 is amortized over 10 years, a conservative number of years for this type of equipment, for an annual recoverable cost of \$1,003,000. The costs are allocated to the light-duty and the heavy-duty highway industries using the actual cost allocation method according to the program for which the equipment is purchased.

*Communications:* The communications category includes the Working Capital Fund (WCF), IT Support and Computer Support. The Working Capital Fund expenses are for the AA and DC OTAQ facilities. This category covers workforce-related information technology services including but not limited to E-mail, Internet connectivity, Wide Area Network (WAN) and Local Area Network (LAN) access, long distance services and teleconferencing. In addition to the above, the Working Capital Fund also covers the OTAQ DC facilities telephone, voice mail and miscellaneous services. IT support are expenses related to contracted services for the OTAQ Ann Arbor facility. These services include help-desk support, desktop installations, moves, repairs and voice and data services (e.g. phone and video conferencing). Computer Support applies to AA and DC OTAQ facilities and are comprised of items needed to keep our computer systems operational. This includes, but is not limited to, licenses for hardware and software, equipment, parts and supplies.

The recoverable portions of the WCF and Computer Support in the 2001 budget was determined by the FTE method, multiplying the total cost by the ratio of recoverable, direct and indirect FTEs in LOD and CCD to the Total FTEs in OTAQ. This ratio was used since LOD manages the budget but provides services to all OTAQ FTE. The total recoverable amounts were then allocated to LOD and CCD using the ratio of each divisions' direct, recoverable FTE. LOD's recoverable cost was then allocated across industry categories using the FTE method.

The recoverable portion of IT support costs for Ann Arbor in the 2001 budget was

determined by using the FTE method, multiplying the total cost by the ratio of total recoverable FTEs in LOD and CCD's Ann Arbor location to the Total FTEs in the Ann Arbor campus. This ratio was used since LOD manages the budget but provides services to all FTE housed in Ann Arbor. The total recoverable amounts were then allocated to LOD and CCD using the ratio of each divisions' recoverable FTE to the Total recoverable FTE. LOD's recoverable cost was then allocated across industry categories using the FTE method.

The recoverable costs for WCF, Computer Support and IT Support were summed and the recoverable portions for LOD and CCD were listed under the Communications heading. The recoverable cost for LOD is \$223,839, the recoverable cost for CCD is \$470,671 and is listed on the CCD summary sheet. The LOD recoverable Communication cost was allocated to the industry categories based on the ratio of LOD direct, recoverable FTE /Total direct LOD FTE allocation method.

*Buildings & Facilities:* Buildings and Facilities costs are non-recurring costs that are included but not limited to the laboratory building purchase, office building expansion and necessary repairs and improvements to both buildings as discussed in detail in Worksheet #11.

The total for Buildings and Facilities is \$21,427,000, with an amortized annual recoverable cost of \$236,559. An discussion of the determination of the recoverable costs is included in the explanation of Worksheet #11. The recoverable cost was then allocated across industry categories using the FTE method.

**Total Indirect Program Costs:** The total indirect costs are a sum of the columns in the Indirect Program Costs portion of the table.

**Direct Program Costs:** includes the cost of testing either at EPA's lab or a contracted testing facility, procurement of vehicles or engines and equipment needed to conduct the tests. These are costs directly associated with EPA's compliance programs. LOD's direct program costs are all associated with testing at the NVFEL.

*Core Testing Operations-* Core Testing Operations include the costs for instrumentation repair, lab maintenance contracts, vehicle and engine procurement, and other aspects of conducting tests. The total and the determination of the recoverable costs are described in more detail in the description of Worksheet #12. The total cost is \$2,274,460 and the recoverable cost is \$1,592,545. The recoverable cost was then allocated across industry categories using the FTE method.

Total Direct Program Costs consists of the Core Testing costs.

**Grand Total Recoverable Costs:** The Grand Total Recoverable Costs is the total of all of Labor and Operating costs described above. The total recoverable cost for LOD is

\$7,234,735

## **B. Certification and Compliance Division (CCD)**

The Certification and Compliance Division (CCD), implements the motor vehicle and engine standards, thereby ensuring that manufacturers can meet their Clean Air Act obligations and enable themselves to sell regulated vehicles and engines within the United States. CCD uses a three part program to assure compliance with EPA emissions regulations. The four part compliance program consists of vehicle and engine certification; fuel economy; selective enforcement auditing and production line testing; and in-use testing and recall.

### **1. Overview of CCD Functions and Division Structure**

#### **Certification**

Before a manufacturer can distribute into commerce, introduce or deliver for introduction into commerce, import, sell or offer for sale a regulated vehicle or engine in the United States, it must obtain a certificate of conformity from the EPA. Each model year, EPA receives certification requests for LDV/LDTs, heavy-duty compression ignition (CI) and spark ignition (SI) engines, heavy-duty vehicle evaporative systems, motorcycles, heavy-duty highway engines, nonroad spark ignition (SI) engines, nonroad diesel (CI) engines, locomotives and marine engines. EPA processes these applications and makes a determination of conformance with the CAA and related regulations. If the vehicles or engines satisfy the prescribed emission standards, EPA issues a Certificate of Conformity for the relevant vehicles or engines.

The certification process includes but is not limited to an application for certification review, a durability justification review, an onboard refueling vapor recovery system review (where applicable), emission-data vehicle approval and processing, certification request processing and computer support. Other activities related to the certification process include auditing an applicant's testing and data collection procedures, laboratory correlation, and EPA confirmatory testing and compliance inspections and investigations related to certification.

#### **Fuel Economy/Corporate Average Fuel Economy (CAFE)**

CCD administers EPA's fuel economy program for passenger cars and light-duty trucks, which includes activities such as fuel economy labeling and CAFE auditing. Fuel economy labeling provides fuel economy values and other information to consumers. These labels are used by manufacturers to market their products and meet the requirements of the Energy Policy and Conservation Act (EPCA). Other fuel economy activities include confirmatory testing of vehicles, and reviewing and auditing manufacturers' vehicle and engine tests, calculations, and labels. EPA oversees CAFE activities that determine each manufacturer's compliance with the CAFE standards specified in the EPCA.

### Selective Enforcement Auditing and Production Line Testing

To further ensure compliance with the CAA, EPA has the authority to test a sample of new vehicles or engines covered by a certificate as they leave a manufacturer's assembly line (production vehicles and engines) and to revoke or suspend any certificate of conformity, in whole or in part, if the Administrator determines that all or part of the vehicles or engines covered by the certificate do not conform with the regulations under which the certificate was issued. SEAs involve selecting vehicles and engines off of the assembly line and monitoring their testing at various production plants around the world to determine compliance with emission standards.

Under some regulations, and in some cases voluntarily, manufacturers submit their own production line test data to the EPA. In these cases, manufacturers routinely select and test vehicles or engines from the assembly line and then submit the data to the EPA. The data is reviewed to assure that the vehicles and engines conform to the applicable standards.

### In-use Testing and Recall

In-use compliance activities ensure that vehicles and engines continue to meet emission standards throughout their useful lives.<sup>8</sup> In-use compliance relies upon testing performed by the EPA and manufacturers to assure that the vehicles and engines are meeting the applicable standards in the field. If the tests indicate that a vehicle or engine group does not meet the applicable in-use emission standards, then a manufacturer may be required to remedy the nonconformity.

### **Division Structure for CCD**

CCD consists of three program groups and a division office group. CCD is geographically split between Ann Arbor, MI and Washington, D.C. with two groups in each location. The following are the responsibilities of the individual groups.

- 1) Vehicle Programs Group (VPG) - VPG performs most of the compliance work for light-duty vehicles. VPG activities include the certification and fuel economy programs, selective enforcement auditing, in-use testing and recall for these vehicles.
- 2) Outreach and Planning Group (OPG) - OPG is split between Washington, DC and Ann Arbor, MI. Each geographical location has a group manager. This group is responsible for outreach, planning, budgeting and assessment, enforcement development and policy coordination. OPG also contributes to regulation development and coordination, information management, and other programs.

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<sup>8</sup>Definitions of vehicle and engine useful life are included in sections 202 and 207 of the CAA, as amended.

- 3) Engine Programs Group (EPG) - EPG performs most of the heavy-duty and nonroad engine compliance activities. This includes certification, selective enforcement auditing, in-use testing and recall for heavy-duty engines, heavy-duty trucks and nonroad engines.
- 4) Division Office Group - This group performs both program work and the administrative tasks to keep the division operating effectively and efficiently.

## 2. CCD Data Collection Steps

For CCD the following general methodology steps two through six described earlier (Section III. A.) were used in collecting cost and program information. Below is a detailed description of this data collection process.

*1) Examined 2001 OTAQ budget to determine which OTAQ programs are MVECP related.*  
We examined the CCD budget to determine the programs in CCD and the costs of these programs.

*2) Identified and specified all current costs associated with CCD that conduct or support the MVECP and identified and specified all projected future compliance program costs under MVECP.*

Within CCD, all costs associated with the certification, fuel economy, selective enforcement auditing and in-use testing and recall programs for new vehicles and engines were determined to be recoverable because they contribute directly to the MVECP.

The FY 2001 CCD budget details the costs of running current compliance programs. The FY 2001 budget was used as a starting point because it contained the most current data available for calculating the costs of compliance activities. We adjusted those costs to FY 2003 levels for our current programs.

CCD also examined its plans for future compliance programs and estimated the costs for those programs. Cost estimates for the future compliance programs are based on the cost estimates for the equipment and contract needs and the projected job functions required to support the new compliance-related regulations. Included in plans for future program are an in-use motorcycle compliance program and an enhanced engine compliance program. These projected programs and the associated costs are discussed more fully later in this document and in the description of Worksheets # 13 and #16.

*3) Determined the cost allocation type and methods for apportioning MVECP costs.*  
The allocation methods used by CCD are discussed in the Step #3 of the General Methodology steps in Section III. A above.

*4) Categorize all these costs into two major categories-direct and indirect labor, direct and*

*indirect operating costs and determined the portion of these costs that was recoverable (associated with the MVECP).*

The CCD's portion of the costs to run the MVECP was divided into two categories: Labor and Operating Costs. The Labor and Operating categories include both direct and indirect costs associated with CCD's compliance activities. This is described in detail below.

### **CCD Labor**

CCD labor was determined in the same way as discussed in the overall summary, using FTE as a unit of labor for CCD employees and a PC&B rate of \$99,580. The labor costs were divided into two categories- direct and indirect. The breakdown of CCD's labor force is on Worksheet #14.

*Direct labor*-are the FTE associated with CCD's programs. The number of recoverable, direct FTE, those that work directly on certification and compliance programs, were determined by interviews with Senior Management and, in some cases, specific employees to determine the amount of time each employee spent of certification and compliance programs and on which industries.

*Indirect Labor*- are the FTE that provide support to CCD's direct FTEs. The indirect FTE were determined via discussions with Senior management . The recoverable portion of the indirect FTEs' time was determined by assessing the portion of the indirect FTEs' time that that was attributable to supporting CCD's direct, recoverable FTE. Because the indirect FTE in the division provide support equally to the direct FTE in the division, the recoverable portion of the indirect FTEs' time was determined by multiplying the number of indirect FTE by the number of CCD recoverable, direct FTE over the total number of CCD direct FTE.

### **CCD Operating Costs**

Operating costs include such things as contracts, equipment, supplies and infrastructure that are needed for the CCD FTE to conduct compliance activities. These costs do not include Labor costs. Operating costs are split into two categories; Direct Program Costs and Indirect Program Costs. CCD's Direct Program Costs are detailed on Worksheet # 13.

*Indirect program costs* are those costs for services provided to FTEs that allow them to perform their jobs. These costs include but are not limited to the costs of office space, computer support, travel and training. These costs are taken from CCD's budget with the exception of Ann Arbor Facilities Operating Costs; Safety, Health and Environmental; and Communications. The cost for these three categories are CCD's portion of costs that come from LOD's budget, as discussed in the LOD Summary section above, (Section V.A-3.)

Recoverable, indirect program costs were determined by assessing the portion of the cost that was attributable to the MVECP. The recoverable portion of each indirect program costs was determined using different methods. In most cases, the recoverable portion of a cost was

determined by applying the fraction of direct, recoverable CCD FTE to the total, direct CCD FTE for each program item as discussed below:

1) Travel, Training, Office Supplies and Miscellaneous

CCD's budget includes travel, training and office supplies for the division. These items are provided to employees as they are needed for the employee to perform his or her job effectively. CCD does not record or estimate what portion of these funds is used in support of compliance activities. Therefore, the recoverable portions of these budget items were estimated using the FTE allocation method, by multiplying CCD's budget amount for these items by the ratio of recoverable, direct CCD FTE to total, direct CCD FTE.

2) CCD SEEP Employees

As stated above, the EPA participates in the SEEP program whereby the agency contracts with an organization that provides qualified retired persons to perform duties for the agency that are not performed by the existing workforce. The costs associated with this grant program are considered operating costs. Each division allocates money for the SEEP employees that work for the division.

The CCD budget includes a contract item for hiring SEEP employees. The average wage for each full time CCD SEEP is \$29,800. Actual wages may vary depending on an employee's duties and work schedule. This average assumes that each employee works full time. To estimate how much of the SEEP budget is dedicated to supporting recoverable compliance activities we interviewed supervisors and asked them to estimate how much of each employee's time is spent on compliance activities. For employees who work directly on recoverable programs, we used the actual cost allocation method, and directly converted the employee's time into a cost.

SEEP employees that provide services to the entire division, such as secretarial support, provide indirect support to the direct FTE. To determine the portion of the budget for indirect, recoverable SEEP employees, we used FTE allocation method to determine the indirect FTE for CCD. We calculated the percentage of recoverable, direct CCD FTE to the total, direct CCD FTE and multiplied this by the number of senior employees that provide indirect support to the division. Worksheet #15 shows the recoverable portion of the senior budget.

3) Ann Arbor Facilities Operating Costs; Safety, Health and Environmental; and Communications

The cost for these three categories are CCD's portion of costs that come from LOD's budget, as discussed in the LOD Summary section above, (Section V.A-3.) The recoverable costs for the categories were carried from the Overall Summary to the CCD

summary sheet. The recoverable totals for these categories are listed in the Compliance Costs Column.

*Direct Program Costs* are CCD's costs for compliance work. This includes the cost of testing at contracted testing facilities<sup>9</sup>, procurement of vehicles or engines and equipment needed to conduct the tests. Also included are the costs of computers used specifically for FTEs compliance activities and for maintaining test data.

The recoverable, direct costs, those that relate directly to the MVECP, were determined by discussions with Senior management and by review of contracts. The costs for the direct, recoverable programs were determined by examining the CCD 2001 budget and projecting the costs for those programs to the 2003 fiscal year. In some cases, new compliance programs are being planned. The costs for these programs were estimated using contractor estimates and equipment prices. The recoverable Direct Program Costs include both the cost of the current programs projected to 2003 (Worksheet # 13) and the planned program cost estimates, (Worksheet # 16).

5) *Separated industries by testing and compliance services.*

The Fees categories used in CCD are the same as those for the General Steps description.

6) *Allocated recoverable costs by fee category.*

The allocation of costs by fees categories is explained in the General Steps description. For Direct Labor Costs and Direct Program Costs items the costs were directly allocated to individual categories. In all other cases, though, the costs were allocated using a ratio of FTE that work in a category to the total, direct, recoverable FTE.

### **3. Explanation of CCD Summary Sheet (Worksheet #4)**

The CCD summary sheet illustrates the distribution of CCD's recoverable budget dollars. The left-most column lists each of the recoverable budget items. The calculation of the total compliance costs and the distribution of the costs among different industries is shown across the page.

As stated above, please note that because the numbers in this discussion have been truncated at two decimals, the numbers discussed below may be slightly different than the totals stated and those on the worksheets. This is because the numbers in the cost analysis may be carried out farther than two decimals and, therefore, the product of these numbers may be slightly different than that of the truncated numbers.

#### Labor

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<sup>9</sup> The cost of testing that is performed at EPA's lab is included in LOD's portion of the cost analysis and are not included in CCD's portion of the analysis.



*DC Direct and Indirect, AA Direct and Indirect* - The first heading in the left column is labor. The labor FTEs are taken from Worksheet #14. Labor categories are split between direct employees and indirect employees in Ann Arbor, MI and Washington, DC. The compliance costs column shows FTE for each category multiplied by the standard OTAQ PC&B rate of \$99,580.

DC Direct and Ann Arbor Direct compliance costs are the product of the recoverable, direct FTE's in those geographical areas times the PC&B rate.

DC Indirect and AA Indirect costs were determined by applying the ratio of direct recoverable FTE to total FTE for each geographic location number of indirect FTE in that location (See Worksheet #14 for a breakdown of CCD FTE). The ratio of 19.36/37 was applied to the DC indirect FTE (3) and the ratio of 23.22/36.8 was applied to the AA indirect FTE (5.7) to determine the recoverable indirect FTE (1.57 in DC and 3.6 in AA, as represented in the second column of Worksheet #4). Indirect labor for DC and Ann Arbor was determined using the FTE allocation method, by multiplying the number of recoverable indirect FTE for the two locations, indicated in the second column as 1.57 and 3.6, by the standard PC&B rate of \$99,580 resulting in compliance costs for DC and Ann Arbor of \$156,314 and \$358,147, respectively. The recoverable portion of the indirect labor cost was determined by the FTE allocation method, by multiplying the indirect labor cost by the ratio of CCD direct, recoverable FTE over the total, direct CCD FTE.

The Total Labor Cost was determined by totaling the DC and AA indirect, recoverable FTE (5.17) and adding them to the direct, recoverable FTE for DC and AA (42.58) for a total of 47.75 FTEs, shown in bold in the second column of Worksheet #4. The total recoverable labor cost for CCD is the total number of FTE times the PC&B rate of \$99,580 for a total labor cost of \$4,754,578 shown in bold in the Compliance Cost column of Worksheet #4.

The next two columns show the costs specifically for light-duty vehicles and trucks with subcategories for certification and fuel economy, in-use and ICI. Note that there are no light-duty costs for Washington, DC. because light-duty compliance work is done only in Ann Arbor. To determine the specific costs for the light-duty industry, managers of CCD were interviewed and asked to identify the people who worked directly on light-duty. The number of direct, recoverable FTE working in Ann Arbor are 23.22 as shown on Worksheet #14. The FTE that work directly on certification and fuel economy were 6.02, one of which works specifically on ICIs. The total for in-use was 5.4 making the total FTE for LD certification and fuel economy equal to 11.42. The labor cost for LD FTE who work on ICIs is \$99,580. The labor cost for LD FTE who work on cert and fuel economy is \$99,580 times the FTE for a total of \$1,037,624. The in-use portion is determined the same way using the LD FTE who work on in-use for a total of \$1,025,674. The Total LD column without ICIs shows the total of the previous two

columns, \$2,063,298.

The indirect costs for the light-duty industries (ICI, Cert/FE and ICI) were determined using the FTE method, by multiplying the total compliance costs by the percentage of recoverable, direct FTE working in each industry divided by the total recoverable, direct FTE. The result is split between ICI, Cert & FE and In-Use by multiplying by the ratios of FTE that work in those areas.

The column entitled MC shows the costs for the motorcycle compliance program. The labor cost for the program is the PC&B for 1.5 FTE and the staff that indirectly supports those FTE. The indirect PC&B was determined using the FTE allocation method, by multiplying the fraction of motorcycle FTE to total, direct, recoverable CCD FTE by the compliance costs for AA direct labor and indirect labor. The cost of direct labor is \$149,370 and the cost of the indirect labor is \$23,459.

The next columns show the costs for heavy-duty highway diesel and gas engines, nonroad CI engines and other engines. Because the heavy-duty and nonroad CI and Other compliance programs take place in Washington, DC, there are no labor costs for these programs in Ann Arbor.

The labor cost associated with these categories of vehicles and engines is determined using the FTE method. The PC&B cost is multiplied by the number of FTE who work on each category. We determined that 11.86 FTE work on HD HW engine compliance, 5.06 direct FTE work on NR CI compliance and that 2.44 FTE work on compliance for other engines and evaporative systems. The FTE labor fraction of the overall, recoverable, direct labor cost for the HD HW engine industry is  $11.86/42.58$ . The labor fraction of the total, recoverable FTE for the nonroad CI industries is  $5.06/42.58$ . The labor fraction of the overall recoverable FTE for the Other industries is  $2.44/42.58$ . The total labor costs for the industries are the respective fractions multiplied by the CCD total, recoverable, direct labor compliance costs for a total of \$1,180,591, \$504,273 and \$243,005 respectively.

We calculated the indirect labor cost for each category using the FTE method, as was done for the direct labor costs. We applied the HD HW, NR CI and Other industry ratios discussed above to the indirect FTE compliance cost. The result is \$95,724, \$40,887 and \$19,703, respectively.

### Operating Costs

*Travel*- The first item in the operating cost section of the worksheet is the travel allowance for CCD. The entire travel budget for the division is \$155,000. We determined the applicable compliance costs using the FTE allocation method, by applying the percentage of direct, recoverable, CCD FTEs to total, direct CCD FTEs, resulting in a total compliance cost of \$101,459. We allocated the travel costs to the different

industries by the FTE allocation method, determining the percentage of the FTEs that work on those industries to the total, direct, recoverable FTEs and applying those percentages to the total compliance travel cost.

*Seniors AA, Seniors DC-* The next items under Operating Costs are Seniors-AA and Seniors-DC. As discussed above, EPA uses a contract to fund the hiring of senior employees under the SEEP program. The recoverable portion of the SEEP employees budget item is determined by adding the hours that each SEEP works on compliance activities (either directly or as support to the recoverable, direct FTEs) and converting that into a certain number of full time senior employees and multiplying that by the salary for a full-time SEEP. The average salary for a full time SEEP is \$29,800. The number of SEEP employees and the recoverable cost of each SEEP employee is shown in Worksheet # 15. The resulting costs are \$220,929 for AA and \$104,573 for DC. The recoverable costs are allocated to the industries using the FTE allocation method as was done in Travel above.

*Ann Arbor Facilities Operating Costs; Safety, Health and Environmental Costs and Communication Costs-* These costs are paid by LOD's budget. The total costs for these items are listed in LODs Summary Sheet (Worksheet #4). The recoverable portion of these costs was determined as described in the LOD discussion of these costs in Section V.A-3, above. CCD's portion of the costs was determined by multiplying the total recoverable cost by the number of direct CCD FTE divided by the number of total recoverable, direct FTE for LOD and CCD.

The Ann Arbor Facilities Operating Costs and Safety, Health and Environmental Costs are incurred while operating the Ann Arbor facility. Therefore, these costs are only divided among the light-duty and motorcycle industries. The costs are split between the ICI, Cert & FE, In-use and Motorcycle categories using the FTE allocation method.

Communications costs include Working Capital; IT Support; and Computer Support as discussed above in the LOD section. The costs the Communications item were also determined in the LOD section because that division manages the finance of these services. CCD's recoverable costs are allocated to the industries using the FTE allocation method as was done in Travel above.

*Miscellaneous and Office Supplies AA & DC and Training DC & AA-* The next categories of operating costs are Miscellaneous and Office Supplies, and Training for DC and Ann Arbor. These are budget items from CCD's 2001 budget. The recoverable costs of these budget items were determined using the FTE allocation method, by applying the cost of each budget items to the percentage of CCD direct, recoverable FTE to CCD direct FTE. The recoverable costs are allocated to the industries using the FTE allocation method as was done in Travel above.

Direct Program Costs The program costs for heavy and light-duty vehicles and engines come

from the CCD Programs (Worksheet 13). The total compliance cost is \$3,158,400.

The totals for this row come directly from the respective categories on Worksheet #13. A discussion of the categories and the programs for the industries follows in the discussion of Worksheet # 13.

The light-duty cost \$1,790,000, from the Light-Duty Compliance section of Worksheet # 13, is allocated over the ICI, Cert/FE and In-use columns using the FTE allocation method by multiplying the LD cost by the fraction of direct, recoverable FTE in each industry category to the total, LD, direct, recoverable FTE.

The Motorcycle Subtotal, the Heavy-Duty Highway Engine Compliance Total, the Nonroad CI Engine Compliance Total and the Other Compliance Total in Worksheet # 13 are all carried forward to the respective industry category cells in the CCD Compliance Programs row in the CCD Summary Sheet.

#### Grand Total Recoverable Costs

Grand Total Recoverable Costs for CCD are the total of the labor (direct and indirect), and operating program costs tot total of which is \$9,919,715.

### **C. Explanation of Worksheets #5 Through # 16**

#### **LOD Direct Labor (Worksheet # 5)**

This worksheet shows the FTE from LOD's Compliance Development and Testing Group (CDTG) and the Advanced Testing Group (ATG) that work directly on compliance testing. The table illustrates how we counted recoverable FTEs for LOD in terms of direct labor. The recoverable FTEs are only from the CDTG group. This group performs compliance and in-use testing. ATG has no recoverable FTE because the work is based on developmental testing and research in vehicle technology and not compliance testing. Below is an explanation of the breakdown as shown in worksheet #5.

Of the 19 FTE in CDTG, 10 FTE work on vehicle testing. According to the Senior manager, 70 percent of their work is compliance-related, resulting in 7 recoverable FTE. Because there are no recoverable tests performed by ATG, the number of recoverable direct FTE is 7.

#### **LOD Indirect Labor Cost (Worksheet #6)**

LOD Indirect Labor costs are incurred by the work of four support groups – Testing Services, Facility Services, Information Management, and the Immediate Office. The recoverable costs for each of these support functions were determined based on interviews with group managers.

Testing Services Group - provides three distinct services listed below. These services were

reviewed separately to determine how much time the FTEs in each of these groups spend supporting the compliance and confirmatory testing process.

- 1) *The Data Team* develops and maintains computer systems for the operational groups. Out of the four FTE in this group, one works solely on the development of vehicle test data which is fully recoverable. The remainder of the group supports the Advanced Technology Group and performs the development testing of vehicles and engines which is considered non-recoverable. There is 1 recoverable FTE in this group.
- 2) *The Chemistry Laboratory Team* performs various chemical analyses for compliance testing and regulatory development. The chemistry laboratory has five FTE two of which are recoverable. One FTE solely does compressed natural gas work, which is 100 percent compliance related. The chemistry laboratory has another FTE that works on the fuels needs for the laboratory. That FTE spends approximately 40 percent of his/her time supporting fuel confirmatory testing needs. The rest of the FTEs perform non-recoverable work. There are 1.4 recoverable FTE in this group
- 3) *The Maintenance Team* which calibrates equipment in the laboratory, performs minor repairs, performs diagnostics in test cells, provides calibration gases and does other ad-hoc work required to keep a laboratory running smoothly. There are seven FTE in this group of which 2.2 support confirmatory testing and are, therefore, recoverable.

The Testing Services Group has a total of 4.6 recoverable FTE.

#### Facilities Services Group

- 1) *Facilities* employs 4.75 FTE and provides housekeeping, security, and HVAC management services. This group does not provide any unique service to the Compliance and Confirmatory Process, therefore FTE were allocated by the standard measure of work facilities uses, square footage serviced. The procurement group uses "Purchase Requests processed" as a standard measure of work. Recoverable FTE were determined using the square footage allocation method, by multiplying the percentage of recoverable square footage by the number of FTE. The percent of recoverable square footage was determined by examining which areas were allocated for activities directly related to compliance and confirmatory activities and dividing by total square footage. These calculations resulted in a total of 1.4 recoverable facilities FTE.
- 2) *Purchasing* provides procurement services and employs 3 FTEs. This group does not provide any unique service to the Compliance and Confirmatory Process. Therefore FTE were allocated by the standard measure of work that the Purchasing group uses- Purchase Requests (PR's) processed for procurement. (Note: because this is the only instance of using purchase requests as an allocation method, it is not listed in Section III, A as an allocation method.) An interview with the group manager and review of PR's indicated that approximately 75 percent of requests were from the LOD and CCD. Of the portion

from LOD and CCD, 9 percent were allocable to confirmatory and compliance testing. The net result is 6.8 percent ( $75\% \times 9\%$ ) of 3 FTEs time is recoverable (.20 FTE).

- 3) *Quality Control* employs 2 FTE and provides unique services to each of its customers. Based on interview with the group's manager, the quality control group spends approximately 90 percent of its time with the Compliance and Development Testing Group. Approximately 70 percent of that time is related to compliance and confirmatory testing. As a result, 63 percent of the 2 FTE (1.3) is recoverable.

The Facilities Services Group has a total of 2.9 recoverable FTE.

The Information Management Group (IMG) provides communication infrastructure services to the six OTAQ divisions. Based on an interview with the group manager, this group does not provide any unique service to the compliance and confirmatory process. Therefore, FTE were allocated using the workstations serviced allocation method. The IMG is broken into two groups: Program Management Network and Laboratory Network System.

- 1) Program Management Network (PMN) provides support services to all operations except laboratory testing. This group employs a total of nine FTE. The recoverable portion of FTE was determined by dividing the number of workstations serviced (450) by the number of recoverable workstations (63) in LOD and CCD. This quotient is multiplied by the number of FTE in the PMN group (9) to determine the recoverable portion of PMN, 1.3 FTE.
- 2) Laboratory Network System (LNS) provides support services for laboratory testing. This group employs a total of 2.25 FTE and services 300 workstations of which 40 are for The CDTG group. Per discussion with the group manager of CDTG 70% of the work performed on these workstations is for compliance and confirmatory testing. 28 Workstations were deemed recoverable. The quotient ( $28/300$ ) is multiplied by the number of FTE in the LNS group (2.25) to determine the recoverable portion of LNS FTE is 0.2.

The total recoverable FTE for the Information Management Group is 1.5.

LOD Immediate Office employs 17 FTE, which handle the managerial and administrative functions of LOD. The Immediate staff does not provide a unique service to the Compliance and Development Testing Group thus its labor costs are allocated using Direct Recoverable FTE/ Total Direct FTE. As a result, 34 percent of the 17 LOD Immediate Office FTE is recoverable, 5.8 FTE.

### **LOD Additional Labor Needs (Worksheet #7)**

This worksheet describes the LOD additional labor needs for compliance testing services the EPA will implement by FY 2003. EPA will be performing new or additional confirmatory, in-

use and highway testing for light-duty vehicles (including medium-duty chassis testing), heavy-duty engines and nonroad gasoline engines. The worksheet shows the FTE that Senior Management state will be required for light-duty portable emissions system testing, medium-duty chassis testing under the light-duty program, heavy-duty highway engine, and nonroad engine testing programs. Both direct and indirect FTEs are utilized in these areas. Direct FTE are involved in conducting and performing tests. Indirect FTE provides computer support by processing the data collected. Based upon interviews with group managers in LOD and CCD, the following FTE are needed in the following test areas as shown in Table III.B-2 below:

**Table III.B-2**  
Additional LOD FTEs Needed for Compliance Testing Services

<i><b>Industry</b></i>	<i><b>Direct FTE Needed</b></i>	<i><b>Indirect FTE Needed</b></i>
<i><b>Light-duty</b></i>	6	0.5
<i><b>Heavy-duty Highway</b></i>	2.25	0.5
<i><b>Other</b></i>	1.25	0.5
<i><b>TOTAL</b></i>	9.5	1.5

The total FTE for LOD's additional labor needs are 9.5 direct FTE and 1.5 indirect FTE for a total of 11 additional FTE.

#### **SEEP Employee Costs LOD (Worksheet #8)**

EPA participates in the Senior Environmental Employee Program (SEEP) program whereby the agency contracts with an organization that provides qualified retired persons to perform duties for the agency that are not performed by the existing workforce. The costs associated with this grant program are considered operating costs. We interviewed Senior managers in each of the LOD groups to determine whether each SEEP employee performs any work that specifically benefits confirmatory and compliance testing.

In cases where a SEEP employee works directly on confirmatory and compliance testing, that portion of his or her time was directly allocated, using the actual cost allocation method, to the cost analysis and multiplied by the average contract cost of a SEEP.

In cases where an indirect benefit was provided to the program, the FTE allocation method was used to determine the FTEs to be allocated to the MVECP. The indirect allocation was determined by applying the percentage of LOD and CCD recoverable FTE ( for the facilities, S,H,E and IMG seniors who service all of OTAQ) to total Ann Arbor FTE multiplied by the average contract cost per SEEP of \$32,000. The total recoverable cost for senior employees is \$140,305.

### Ann Arbor Facilities (Worksheet #9 )

The Ann Arbor Facilities costs are expenses associated with the maintenance and security of the (NVFEL) Laboratory Building and the Office Building in Ann Arbor. Some of the costs included in the facilities line items are rent, utilities, housekeeping and security. Recoverable costs were determined based on interviews with the Facilities and Compliance Development and Testing Group managers.

Recoverable facilities costs for the laboratory building were allocated using the square footage allocation method calculating the square footage that is used by the Compliance and Development Testing group for confirmatory and compliance testing only. The office building costs were allocated by the square footage allocation method, by determining the square footage occupied by the recoverable FTE housed in that building.

The ongoing costs of the lab building are 35 percent recoverable based on the square footage that is used for recoverable activities. By the same method, 11 percent of the office building operation costs are recoverable.

The amount allocated by industry is based on CCD and LOD recoverable direct FTE by industry divided by the overall CCD and LOD recoverable direct FTE. These percentages multiplied by the recoverable amount of \$1,603,231 equals: \$1,401,415 (LDV), \$60,545 (MC), \$90,817 (HD HW), and \$50,454 (Other). These amounts are pulled forward to the Overall Summary Worksheet #1.

CCD and LOD's portion by industry was determined using the FTE allocation method, by taking the total recoverable amount per industry multiplied by the ratio of CCD or LOD Direct Recoverable FTE by the Total Recoverable Direct FTE by industry. For Example:

LDV Amt	\$1,401,415
CCD FTE - LDV/ Toal FTE - LDV - (21.72/34.72)	<u>* .6256</u>
<b>CCD LDV Amount</b>	<b>\$876,692</b>

#### Special Case:

*Security Services* are available to both the office building and the laboratory building. The recoverable cost is determined using a weighted average of square footage occupied in the laboratory and Office buildings related to compliance and confirmatory testing. The square footage percentages for the lab and office buildings were weighted 75 percent and 25 percent, respectively. This reflects the usage rate of services by both buildings. This percentage is multiplied by the annual contract cost of \$650,000 which results in a recoverable cost of approximately \$188,036.



### **NVFEL Laboratory Modernization Budget Request (Worksheet #10)**

The NVFEL Laboratory Modernization Plan consists of equipment and upgrades necessary to ensure that the National Vehicle and Fuel Emissions Laboratory in Ann Arbor, has the necessary tools to perform all the testing that is required for new rules and regulations regarding mobile sources and air quality. The portion deemed recoverable are determined using the actual cost allocation method, because the pieces of equipment and upgrades are related to compliance and confirmatory testing. All laboratory modernization costs were amortized on a straight-line basis over a 10-year period based on the useful life of the equipment.

To prepare for testing of these new regulatory standards, OAR developed a “Laboratory Equipment Modernization Program” for the Ann Arbor Laboratory. The principle functions that require upgrading at the laboratory are:

- testing of vehicles at very low emission levels using a variety of fuels;
- testing of heavy-duty engines;
- fuel and chemical analysis capabilities

The NVFEL Laboratory Modernization Plan-Budget Submission consists of three critical testing support areas requiring new instrumentation and upgrades. These critical areas are:

- Critical Tier II LDV Test Capability (recoverable costs)
- Critical Diesel Engine Standards Test Capability (recoverable costs)
- Critical Regulatory Development Test Capability (non-recoverable)

The critical testing areas, shown on the Worksheet #10, indicate the required upgrades needed to support compliance testing. Note that the Critical Regulatory Development test capability area is not involved in compliance testing. The instrumentation required in this area will support developmental testing and research and is therefore non-recoverable.

### **Critical Tier II LDV Test Capability:**

#### Standard Tier II LDV Test Capacity

This category includes gasoline fueled, 2WD car and truck compliance testing. EPA must accurately and reliably measure emissions from Tier 2 level cars and trucks. The equipment listed in Worksheet #10 includes low range analytical instruments, exhaust sampling and conditioning systems and instruments needed for the new gas standards and support systems required to operate these systems in a reliable manner. Worksheet #10 also lists the laboratory equipment required to operate these cells in compliance with the revised federal test procedures.

#### Diesel and 4WD Car/Truck Test Site

This category includes gasoline fueled 4WD car, truck and hybrid compliance testing, and all diesel fueled car and truck compliance testing. NVFEL will upgrade current laboratory equipment to test 4WD vehicles and trucks. Currently the laboratory is only capable of testing 4WD designs in 2WD mode. In addition, upgrades will allow the

testing of hybrid vehicle designs that also have 4WD capability. Requests have been made for instrumentation that is needed to test medium-duty passenger vehicles powered by engines that comply with Tier 2 emission standards. The laboratory modernization budget worksheet lists all of the test equipment upgrades required to measure diesel emissions at the Tier 2 levels.

The total recoverable cost for this category is \$8,100,000. There were no non-recoverable items.

### **Critical Diesel Engine Standards Test Capability:**

#### Heavy-duty Engine Test Sites

This category covers testing equipment needed to perform quality compliance testing of heavy-duty highway engines at the current standards, at the 2004 MY standards and at the even tighter 2007 MY standards. Low range analytical instruments and a sophisticated exhaust sampling and conditioning system will be required to reliably measure the lower levels of HC, NOx and particulate matter. Worksheet #10 lists, in this category, the equipment necessary for EPA to test heavy-duty engines that meet the current, 2004 MY, and 2007 MY standards.

The total recoverable cost for this section is \$1,930,000. The non-recoverable costs total \$1,100,000.

### **The Critical Regulatory Development Test Capability**

This capability is not immediately or directly necessary for the current MVECP. Therefore, for purposes of this analysis, we did not include these costs for conducting the MVECP.

The Advanced Technology Division (ATD) is responsible for all automotive technology research and development programs to improve fuel economy and to reduce vehicle and fuel emissions from mobile sources. The major focus of the division is the development of new and emerging technologies such as Clean Car (Partnership for a New Generation of Vehicles), low NOx diesel engines, and alternative fuel technologies. ATD is also responsible for climate change policies and strategies related to vehicle efficiency and fuels.

The total non-recoverable cost for this category is \$3,000,000.

The total Lab Modernization Equipment Costs are \$14,130,000 of which \$10,030,000 are recoverable. The recoverable annual cost, when amortized over 10 years is \$1,003,000.

### **Building and Facilities Costs for NVFEL (Worksheet #11)**

#### **Building and Facilities Costs for NVFEL (Worksheet #11)**

The building and facilities costs that are described in this worksheet are non-recurring facilities expenditures which include but are not limited to: the purchase of the laboratory building, the office building expansion, furniture and necessary repairs and improvements to both buildings which are listed on Worksheet #11.

These costs are amortized over their useful life on a straight-line basis. Useful lives were extracted from IRS Publication 946, Appendix B. The IRS Publication 946, Appendix B, gives the recovery periods for types of assets. It is a standard document that most accountants use as a resource recovery period information, which gives descriptions of different types of assets and their useful lives. For example in Appendix B-1 office furniture shows a useful life of 10 years. The recoverable portion of the Building and Facilities costs were calculated using square footage as a common unit of measure since none of these projects are directly allocable to compliance and confirmatory testing. The grand total of costs incurred is \$21,427,000 with an amortized annual recoverable cost of \$236,559.

### **Core Testing Operations (Worksheet #12)**

Core Testing Operations consists of three groupings:

1. Testing Support Services
2. Laboratory Maintenance Contracts
3. Vehicle and Engine Procurement

The recoverable portions of these groups are allocated to light-duty, heavy-duty and Other industries using the FTE allocation method, by applying a percentage to the total cost of each group. (The light-duty cost is further allocated to ICI, Cert & FE, and In-use in the LOD Summary Sheet using the ratio of test allocation method) The percentage applied is the number of LOD FTE that work directly on compliance testing to the number of direct LOD FTE. The percentages allocable to LDV, HD HW, and Other fee categories are 79 percent, 14 percent, and 8 percent, respectively. Please note that there are no Core Testing Operations costs for LOD for the highway motorcycle and nonroad CI categories because LOD does not currently test vehicles and engines from these industries.

**Testing Support Services** repairs equipment and tests fuels and gases. Testing Support Services has total costs of \$782,800. Based on interviews with Senior managers we determined that 50 percent of testing support services benefit the Compliance/Development Testing Group (CDTG). Of that amount 70 percent is related to compliance and confirmatory testing, and the remaining 30 percent is for regulatory development testing work (we have only included the 70 percent of the 50 percent in our cost analysis). The total recoverable cost of these services is \$273,980. These cost incurred are based on the FY 2001 budget.

**Laboratory Maintenance Contracts** are utilized for the upkeep of laboratory equipment. The total costs for Laboratory Maintenance Contracts is \$266,300. Based on interviews with Senior managers we determined 50 percent of laboratory maintenance contracts benefit the CDTG. Of that amount, 70 percent is related to compliance and confirmatory testing, and the

remaining 30 percent is for regulatory development testing work (we have only include the 70 percent of the 50 percent in our cost analysis). The total recoverable cost of these services is \$93,205.

**Vehicle and Engine Procurement** is all compliance and confirmatory testing related, thus fully recoverable. Total vehicle procurement is \$1,000,000. The procurement cost of Heavy-duty highway (HD HW) engines for recall testing is based on an estimate obtained from a contractor who performs these type of services. The procurement of HD HW engines would cost ~ \$25,000 for the first engine in an engine family and \$22,000 for each additional engine. Tests can be performed on two engine families annually, five engines per engine family. The procurement costs for vehicles is \$1,000,000 and for engines is \$225,360. The procurement costs are 100 percent recoverable at \$1,225,360. The vehicle and engine procurement costs are directly allocated to the light-duty and heavy-duty highway engine categories.

The Core Testing Operations total costs is \$2,274,460, of which \$1,592,545 is recoverable.

### **CCD Programs (Worksheet #13)**

The CCD programs sheet lists direct program costs that CCD expects to fund. The worksheet lists the compliance related programs that are recoverable through fees and is divided into five parts, which are described below.

The first group of recoverable areas is Light-Duty Compliance; it includes all of CCD's light-duty compliance budget items. The first item is the certification and fuel economy information system (CFEIS) which collects manufacturer and EPA emissions test data for certification purposes. Also included in this section are coast down audits and fuel economy audits that will be conducted to confirm the data submitted by manufacturers for certification. Highway testing and industry workshops are recoverable costs as both the printing and the workshops cover material that will clarify EPA regulations for manufacturers.

The next section under Light-duty Compliance is Motorcycle Compliance. CCD is planning to supplement its motorcycle compliance program by conducting some in-use tests. The tests will either be conducted at a contracted facility or at the NVFEL test facility. The total for this program will cover the procurement of the in-use, highway motorcycles from members of the public, the testing of the highway motorcycles, and the computer support needed to establish and maintain the databases for storing the test data.

The next three sections of recoverable costs listed in Worksheet # 13 are Heavy-Duty Highway Engine (HD HW) Compliance, Nonroad CI (NR CI) Engine Compliance and Other Compliance. The first item in each of the categories is computer hardware and software costs for the FTE that work on the programs. The rest of the budget items are the same for the Heavy-Duty Highway Engine Compliance and Nonroad CI Engine Compliance and will be described together a further discussion of these programs is in the description of Worksheet

#16, below. In-use on-vehicle testing is the contract cost of testing HD HW and NR CI engines to determine in-use emissions. The next item is the cost of equipment that will measure real on-road field operating emissions. CCD is planning to purchase commercial emission detection units that can monitor engine emissions during use. The last item under the Engine Compliance categories is the new HD and NR Compliance Program which will be a more robust compliance program for testing new and in-use heavy-duty and nonroad CI engines. The estimated total cost of the program is given in Worksheet #16 and is discussed later in this methodology. The enhanced engine program cost is split evenly between the HD HW and NR CI engine categories because the testing will be evenly split between the categories. The total cost was estimated assuming that testing would take place at a contracted facility.

#### **CCD Labor (Worksheet #14)**

Worksheet #14 illustrates the CCD labor breakdown of recoverable and non-recoverable FTE. Column number 1 of Worksheet #14 shows the fraction of time that each employee works at the EPA, for example, 1 means a full time FTE who works 40 hours a week, .5 means a person who works 20 hours a week for the EPA. As discussed above, Senior management and employees were interviewed to determine what amount of each employee's time was spent directly on recoverable and non-recoverable programs and whether the employee worked directly on programs or indirectly support the direct FTE. Senior Management also indicated what portion of each person's time was spent working in each industry.

Direct, recoverable FTE are those employees who work directly on certification, selective enforcement auditing, in-use or fuel economy audits or other compliance activities. Also counted as direct, recoverable FTE are certain CCD group managers and employees who work with manufacturers to input data into CFEIS and IO staff who work directly with compliance issues. If a group manager's recoverable time could not be determined directly, it was calculated based on the overall percent of the direct recoverable FTE in the manager's staff.

The CCD Labor table shows a total of 73.8 FTE in CCD. The top part of the table shows the FTE that work in Ann Arbor, MI. The bottom part of the table shows those that work in Washington, DC. The total FTE that work directly on recoverable subject matter is 42.58, while the number that work directly on non-recoverable subject matter is 22.47. The indirect FTE that support both recoverable and non-recoverable programs is 8.7. The number of indirect FTE that supported recoverable programs was determined by multiplying the number of indirect FTE by the fraction of CCD direct recoverable FTE to the number of CCD direct FTE.

#### **Senior (SEEP Employee) Cost -CCD (Worksheet #15)**

The Senior Cost Summary shows the percentage of time worked by individual SEEP employees. The average cost for individual CCD SEEP employees is \$29,800. This number was determined by dividing the CCD SEEP budget by the number of seeps. The recoverable, direct total is determined using the percentage of time each individual employee works directly

on recoverable programs, shown in the second column. The indirect number of Senior employees was determined by multiplying the number of indirect FTE by the fraction of recoverable FTE in the program. The recoverable total for SEEP employees is \$220,929 for AA and \$104,573 for DC.

### **Large Engine Highway and Nonroad Compliance Program (Worksheet #16)**

This worksheet describes an engine compliance program that EPA plans to implement. This new program will help to identify engine families or test groups that may fail to meet EPA's large engine highway and nonroad CI engine standards. Listed on the page are aspects of the program that include Confirmatory Testing for Certification, Selective Enforcement Audits, and In-Use Dyno Testing programs. The number of tests planned for highway and nonroad CI engines is listed with the price per test and the total cost for each compliance activity. The test prices are determined by using projected contractor prices.

The CCD Staff column is the number of people needed to plan and oversee the testing. The labor cost for the required staff is included in the CCD Labor worksheet.

## **VI. Conclusion**

When a manufacturer decides to market a vehicle or engine in the United States, EPA is required to provide certain services to assure that manufacturers meet emission compliance regulations. In doing so, EPA incurs costs that are recoverable as authorized by the CAA and the IOAA.

Upon examining the costs incurred by EPA in conducting MVECP activities, an updated fee schedule was proposed. The methodology process described in this document sets forth a user-fee program that is equitable and reasonable. As a result EPA's goal of making the MVECP fee program as self-sustaining as possible will be accomplished.

## **Appendix A**

### **Acronyms**

ASD	Assessment and Standards Division
ATD	Advanced Technology Division
ATG	Advanced Technology Group
CAA	Clean Air Act
CAAA	Clean Air Act as Amended
CAFE	Corporate Average Fuel Economy
CCD	Certification and Compliance Division
CDTG	Compliance Development & Testing Group
Cert	Certification
CFEIS	Certification and Fuel Economy Information System
CFO	Chief Financial Officer
CI	Compression Ignition
DOD	Deputy Office Director
Dyno	Dynamometer
EPA	Environmental Protection Agency
EPCA	Energy Policy and Conservation Act
EPG	Engines Programs Group
FE	Fuel Economy
FMD	Financial Management Division
FSG	Facilities Services Group

FTE	Full Time Equivalent
FTP	Federal Testing Procedure
FY	Fiscal Year
HC	Hydrocarbons
HD	Heavy-duty
HDE	Heavy-duty Engine
HDV	Heavy-duty Vehicle
HW	Highway (on-highway)
ICI	Independent Commercial Importer
IMG	Information Management Group
IO	Immediate Office
IOAA	Independent Office of Appropriations Act
LD	Light-duty
LDV	Light-duty Vehicle
LOD	Laboratory Operations Division
LNS	Laboratory Network System
K	Thousand(s)
MVECP	Motor Vehicle and Engine Compliance Program
MC	Motorcycle
MY	Model Year
NO <sub>x</sub>	Oxides of Nitrogen
NPRM	Notice of Proposed Rulemaking



NR	Nonroad
NVFEL	National Vehicle and Fuel Emissions Laboratory
O&M	Operations and Maintenance
OAR	Office of Air and Radiation
OBD	On-board Diagnostics
OCFO	Office of the Chief Financial Officer
OEM	Original Equipment Manufacturer
OMS	Office of Mobile Sources
OPG	Outreach Programs Group
ORVR	On-board Vapor Recovery
OTAQ	Office of Transportation and Air Quality
PC&B	Personnel, Compensation & Benefits
PMN	Program Management Network
PNGV	Partnership for a New Generation of Vehicles
PLT	Production Line Testing
RFG	Reformulated Gasoline
SEA	Selective Enforcement Audit
SEEP	Senior Environmental Employee Program (also used to describe the actual employee)
SI	Spark-Ignition
TRPD	Transportation and Regional Programs Division
VPG	Vehicle Programs Group



## **Appendix B**

### **Definitions**

Amortize - to provide a gradual extinguishment by contributing periodic payments; liquidate gradually. EPA usually divides a significant, one time cost over a 10 year period of time;

Direct Costs – expenses that can be specifically identified with an output or specifically identifiable to a particular program such as the cost in administering activities associated with the Mobile Source Compliance Program MVECP.

Direct FTE percent of Total – is the percentage used in allocating certain overhead costs across the various industries that are being charged fees. It is calculated separately for the Laboratory Operations Division and Certification and Compliance Division. The numerator signifies how many direct recoverable FTE perform work for the industry we are charging fees. The denominator is the total number of direct recoverable FTEs, which can be found in worksheet #5,7,13 and 15.

FTE - Full Time Equivalent is a unit of measure to equate a full year's worth of work for one employee.

Full Cost - The full cost of programs includes both those costs specifically identifiable with each particular program (direct costs) and those costs which collectively support many programs (indirect costs).

Indirect Costs – are expenses common to multiple outputs but cannot be specifically identified with any particular output. Those costs which collectively support the many programs. Some examples of indirect costs are facilities, computer support, transportation, travel, etc.

Motor Vehicle and Engine Compliance Programs (MVECP)- OTAQ program that incorporates all activities involved the certification and compliance assurance of vehicles and engines.

Motor Vehicle and Engine Compliance Programs Fees Program - a user-fee program that charges manufacturers for direct and indirect services related to the MVECP.

Non-recoverable Costs – are expenses that serve an independent public social interest. Such costs are not included in the MVECP yet contributes to cleaning the air.

Personnel Compensation and Benefits (PC & B)- are all costs associated with the EPA Labor force (salary, health benefits, pension, etc). The rate for PC&B used is \$99,580 per FTE. This is the average PC&B cost for the Office of Air and Radiation

Recoverable Costs – are expenses associated with providing a unique service to a specified set of customers for the Motor Vehicle and Engine Compliance Program (MVECP).

Senior Environmental Employee Program (SEEP) – an employee program that EPA participates in which the agency contracts the work of qualified retired persons.

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